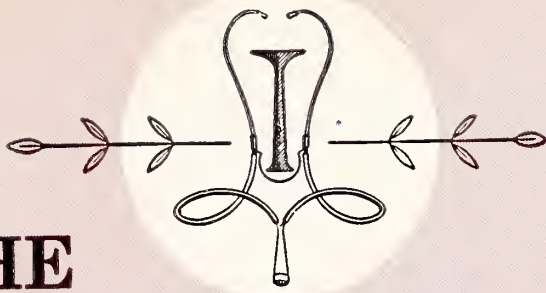




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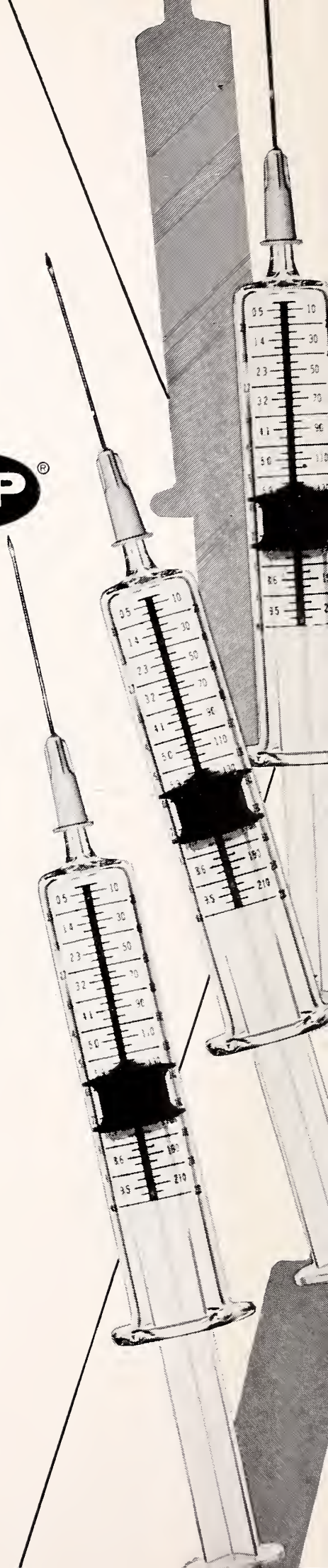
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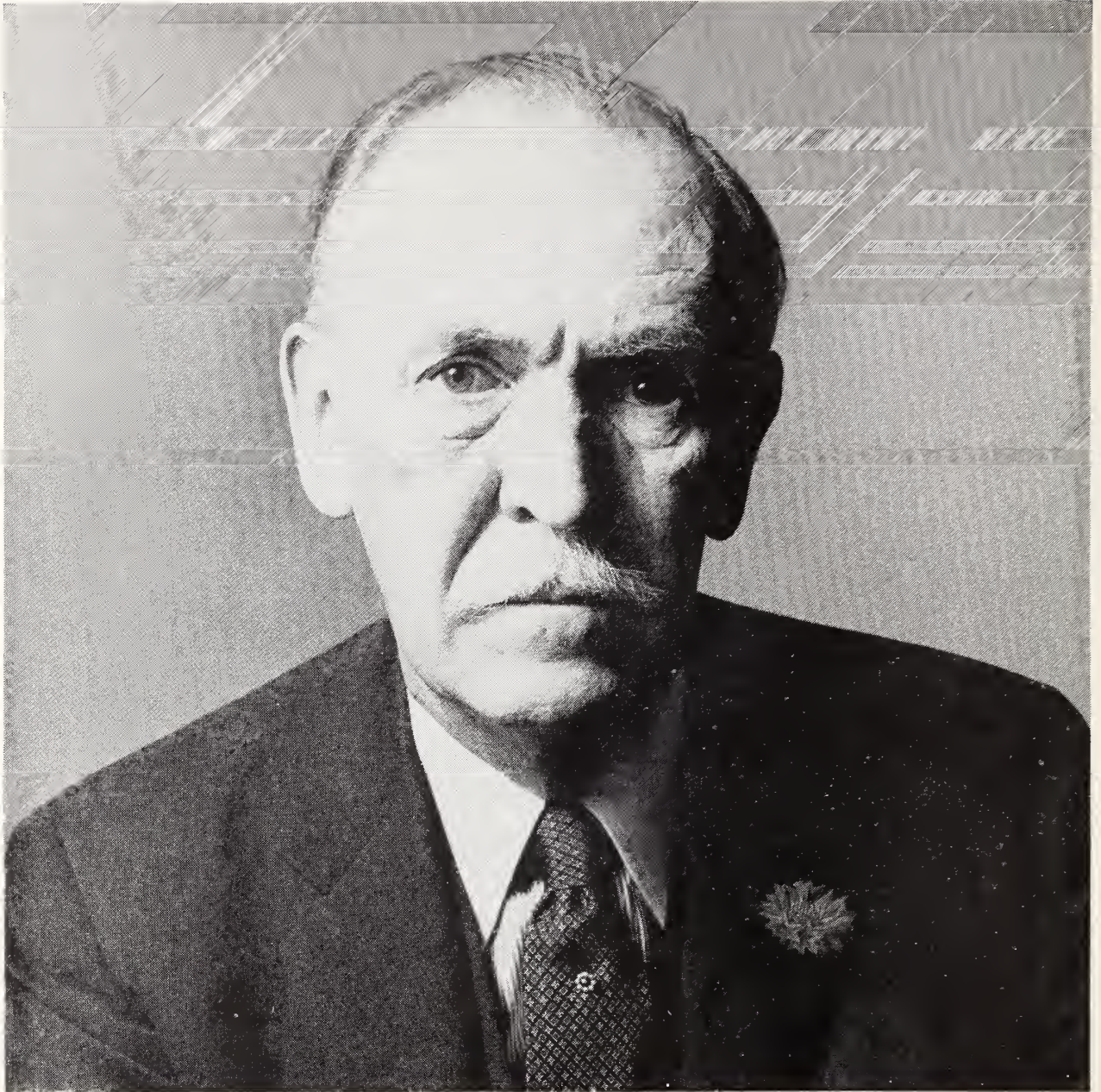
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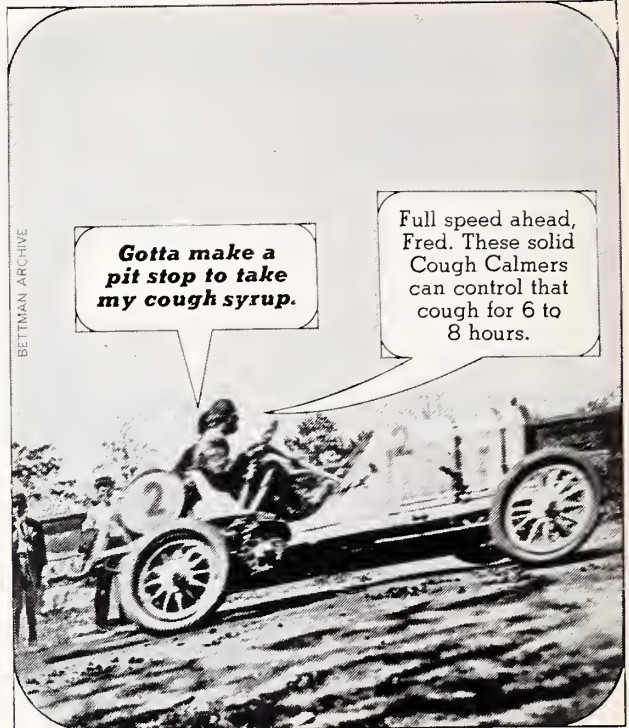
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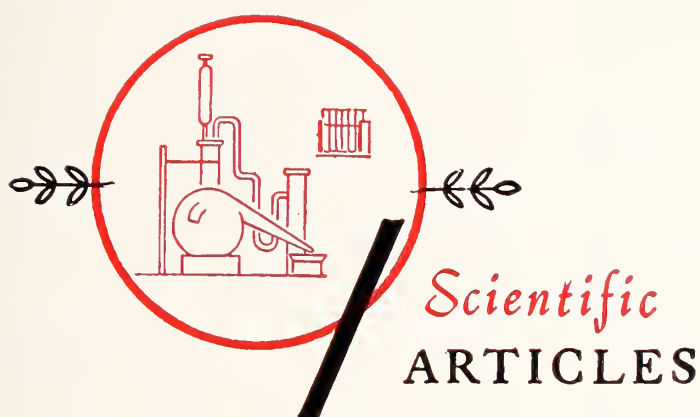
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Automobiles—Highways—Deaths

An Analysis of Our Automobile Culture In Relation to Death and Injury on the Highway

ELDON FILLMAN, M.D.,* Topeka

DEATH AND INJURY DUE TO automobile accidents have become America's No. 1 public health problem. This is the great technological age of automation, computers and supersonic spacecraft and sophisticated rocketry. In this complex frenetic society, the automobile fills the need for quick, comfortable transportation. Unfortunately, the advent of the family automobile has resulted in an incredibly high death toll resulting from highway crashes. In industry as a whole, particularly those in which dangerous machines are in use, safety has been an important factor in reducing injuries and deaths. Industries such as the railroad industry, electric power companies, the machine tool industry and the automobile industry have comprehensive safety programs which reduce the injury rate to an extremely low point. For instance, it is recorded that General Motors has a record of over 90 million man hours without a death. The workers in these plants accept these regulations; in fact, their unions insist upon them. Contrast this with the legislative controls which society imposes upon itself for control of automobile accidents.

There is an appalling indifference to deaths and

injuries suffered in automobile accidents. This is a time of great protest and social upheaval in our land. Groups are protesting racial discrimination, the war in Vietnam, the academic structure, poverty and question the values of our society, but what large group is protesting vociferously the rising toll of automobile deaths?

Great changes are occurring in medicine. New regional medical programs throughout the country are being organized for the treatment of heart disease, cancer and stroke. Large amounts of money, approaching two to three billion dollars, are being spent by the National Institute of Health in research in these areas, including emphysema and organ transplants. Yet deaths due to automobile accidents rank third behind heart disease and cancer. If the age group in which automobile deaths is considered, the calculated economic loss far surpasses the other two groups.

The Causation of Injuries

Injuries to the body fall into two broad groups: those that cause interference with energy exchange within the body such as suffocation, carbon monoxide poisoning or drowning; and energy delivered to the whole body above the threshold of injury. The most common types of energy involved are mechanical, thermal, electrical, chemical and radiation.

* This article, prepared by Dr. Fillman, represents the results of a study made by the Safety Committee of the Kansas Medical Society.

In prevention of injuries to the body, three principles must be followed: (1) To prevent the accumulation of hazardous energy; (2) To protect the host from the energy; and (3) To attenuate the energy if it is delivered to the host. Applying these principles to the prevention of highway crashes, an example could be drawn thus: Autos proceeding in different directions should be separated from each other by divided highways. A fence should be built between the divided highways to prevent a car out of control from crossing into the opposite highway. If a crash occurs, a restraint system should be used to prevent the occupant from dashing himself to death against the interior of his automobile, and ideally, his head should be protected by a helmet. Advantages of this method are illustrated by the daredevil driver who subjects himself to planned crashes and by the automobile racing driver.

Crash-worthiness of the Modern Automobile

Restraining devices have been used in aircraft since 1913. The principles relating to survival include: that the cabin of the craft should not encroach upon the occupants during a crash; the seats should not come loose from their moorings; and belt restraint systems should be used. The lives of many fliers were saved during World War II by observing these three principles.

In a 30 mile per hour crash, if the car involved hits an immovable object, deceleration of the car may occur in a distance of two feet. This is a rate of deceleration of 483 feet per second per second. This is equivalent to 15 g's. The occupant of the car, if he is not wearing a seat belt, is completely separate from the car and does not decelerate with it. He continues on at the same speed and crashes against the interior of the car such as a steering wheel, steering column, dashboard, windshield or door. When he strikes these objects, the automobile is essentially standing still and he may decelerate in a distance as short as two inches. This rate of deceleration equals 5,800 feet per second per second or 180 g's. The limit of survival on an average has been shown to be between 15 and 25 g's. In most common sequence of events in a head-on accident, the driver's body moves forward until the knees strike the dashboard and, depending on the energy, may result in fractures of the tibia, ankles or femur. The body is then pitched forward, the head striking the header above the windshield in the area of the sunvisor, the head and body then slightly recoils and continues forward and downward with the face breaking through the windshield and striking the top of the instrument panel. This abrupt pitching forward may result in fractures or dislocations of the cervical spine or dorsal spine resulting in

quadriplegia. It frequently results in skull fractures and serious head injuries. The course of the face through the windshield results in severe lacerations and evulsions of soft tissues and fractures of facial bones. The driver of the car may impinge his chest upon the steering column. This results in fractured ribs, pulmonary lacerations, and myocardial trauma and lacerations of the great vessels frequently resulting in death. The arms flail forward and fractures and lacerations of the upper extremities of many types are the result.

A seat belt is the first primitive incorporation of a restraint system. This prevents mainly ejection from the automobile; 56 per cent of the people thrown from the car are killed, 25 per cent of those who stay in the car may be killed. The seat belt is an attempt to have the occupant decelerate with the car as one unit. If the occupants can be so packaged as to form a unit with the cabin of the vehicle, the exterior of the vehicle will provide an armor, as it were; this armor will be crushed and in so doing, will provide a distance such that the forces of deceleration brought upon the body will be within survivable limits. Today, styrofoam is used to package delicate electronic gear for shipping. Although the human brain is the epitome of all microcircuits with more than nine billion neurons, how much thoughtful packaging is used for its transportation?

The ideal restraint system is one which is passive and development is being pushed along these lines such that one will only have to sit down in the seat and an air bag system will be used or possibly the seat will have incorporated in it complete protection. If the forces of mechanical energy can be delivered over the whole body rather than a localized area, the human body can stand rather high "g" forces. Many instances of survival from great heights have been documented. For instance, one female fell 93 feet from a building, striking the soft earth. Her body was subjected to an average of 166 g's. A paratrooper fell 1,200 feet from a plane, striking the snow; he impacted three and one-half feet and he survived with only a few contusions, the calculated "g" forces of 140. From this observation, it can be appreciated the tremendous energy delivered to a localized area of the body delivered by such things as the steering column, the gear shift lever, knobs and buttons on the instrument panel and the open glove compartment door. The present instrument panel is anything but a satisfactory impacting surface. The ideal automobile would have nothing but energy-attenuating material in front of the driver and the occupants. Present-day seats come loose from their moorings at about 15 g's. The seats, of course, add to the energy thrust upon the occupants. The side doors and side

frames of the present-day automobile also encroach upon the occupants at intersection crashes causing frequent death. The instrument panel also frequently moves backward during a head-on crash, encroaching and killing the front seat passengers. The seat belt is manufactured to withstand a force of 5,000 pounds. This is contrasted with the seat belt of an Air Force plane made to withstand a force of 8,000 pounds. If the automobile overturns, the roof frequently collapses on the occupants. This is particularly true of the hardtop convertible type cars. Automobiles have yet to be provided with rupture-proof fuel tanks. Adequate windows have yet to be developed of shatterproof and scatterproof glass. Windshields prior to 1966 penetrated at a head-on crash at 13 miles per hour. Since 1966 the improved windshields penetrate at 30 miles per hours. Serious chest injuries continue to result from the effect of the steering wheel and the steering column being constructed of material above the threshold of injury or the column not collapsing properly. The present single oblique torso belt is poorly designed and difficult to fit properly and as a result is being worn by practically no one.

The Role of the Driver in Causation of Highway Crashes

In the age group between 15 and 24, highway accidents are the most common cause of death. The ratio approximates twice that of the other age groups. It is apparent that factors of attitude, personality and adjustment are of greater importance to safe driving than sensory defects, reaction time or psychomotor skills. In this young age group there is an inexperience coupled with recklessness and including factors of aggressiveness and low tolerance of frustration which contribute to the high mortality and morbidity. In the younger age group a lower volume of alcohol intake results in a much higher psychological intoxication. Although the blood alcohol level may be lower than an older age group, the results of use of alcohol are more pronounced and deadly. A high percentage of these crashes may be due to individuals who are disturbed and who have suicidal or homicidal tendencies. One authority is of the opinion that automobiles should not be driven by teenagers.

Medical illnesses related to diabetes, heart disease, epilepsy and alcoholism account for an unknown percentage of highway crashes. It is known that the number of crashes is doubled for members in this category.

In people over the age of 60, the accident rate is again considerably increased. There are primarily three factors involved. (1) Threshold vision deteriorates. For every 13 years of age we need twice the

amount of illumination we did before. (2) Recovery from glare greatly diminishes. Tinted glass windshields decrease the amount of illumination at night for these people to probably less than 70 per cent of that through pane glass. (3) Visual acuity and power of perception is greatly diminished. The motor reflexes are slowed.

All driver reaction is modified to a great extent by acute illness, by injury and by emotion. It is thought that in some cases carbon monoxide poisoning can be produced by urban driving. This can produce anoxia with decreased visual acuity and judgment.

Dr. Osler, a famous physician, stated that man differs from other primates in that he likes to take drugs. There are millions of drivers on the highway daily who are taking such drugs as tranquilizers, antihistamines, motion sickness medication, barbituates and many other medications which can affect the thinking and reaction of an individual. Therefore, it is going to affect his operation of a motor vehicle. The drug which has the greatest overall perverse effect is alcohol.

Alcohol and Its Role in Highway Crashes

The use of alcohol has been prevalent among the peoples of the world for many hundreds of years. The problem of alcoholism is probably no more understood today than it was hundreds of years ago. Many of these people have serious psychiatric illnesses and the personality may encompass paranoid, suicidal or violent aggressive behavior. A definition of an alcoholic has been given by the World Health Organization, Expert Committee on Mental Health: "An alcoholic is one whose excessive drinking and dependence on alcohol has attained such a degree that it shows as a noticeable mental disturbance or an interference with bodily and mental health, interpersonal relations and a smooth social and economic functioning. Essential characteristics are: (1) Compulsive, uncontrollable drinking; (2) Chronicity; (3) Invariable intoxication; (4) Injury to functioning." These people are now legally classified as having a psychiatric illness and they cannot be legally punished. About four per cent of the general population and eight per cent of drivers are alcoholics. These people have serious problems in their homes, their jobs and with their social relationships with other people. Very few of them are members of skid row. These people drive as they live. They drive with a high level of alcohol in their blood. It has been shown that an individual's driving ability begins to be affected at a level of .03 to .05 per cent. Between .05 per cent and .10 per cent practically all occasional drinkers and moderate drinkers are affected adversely. The American

Medical Association and the National Council of Safety and many other scientific experts agree that .10 per cent is the level above which drivers are unfavorably influenced in their ability to control a vehicle. It is felt that the use of alcohol by drivers and pedestrians alike has contributed to some 25,000 of approximately 55,000 fatal highway injuries in the United States annually in recent years. A department of transportation recently submitted a report to this effect to Congress. These drinking drivers have a long history of repeated arrests and violations for driving while suspected of being intoxicated.

An appreciable number of teenagers who crash fatally are found to have been intoxicated. It has been found that 48 to 57 per cent of drivers fatally injured in one-car accidents have a blood alcohol concentration of a very high range of .10 per cent. This is equivalent to five jiggers of one and one-half ounces each of liquor of 80 proof. Blood alcohol concentrations of over .150 per cent have been found in 45 per cent of drivers responsible for and fatally injured in crashes of more than one vehicle. High blood alcohol concentrations appear to contribute to about 25 per cent of the serious non-fatal crashes. Alcohol degrades driving performance in many ways including deteriorations in judgment, vision and coordination. Many physicians frequently fail on clinical examinations to detect symptoms of alcoholism even at levels that produce adverse driving effects. Approximately 60 to 70 per cent of middle-aged pedestrians killed have a blood alcohol level of higher than .10 per cent.

The chronic alcoholic as a driver does not respond to safety campaign slogans or lectures by judges or terms in jail. It cannot be emphasized too much that the chronic alcoholic has a personality disorder. It is not just simply the question of effect of alcohol on a so-called normal personality. The conclusion can be drawn that 12 per cent of the drivers account for 60 per cent of the fatal accidents. The Scandinavian countries, beginning with Norway in 1926, have adopted strict legal legislation regarding the blood alcohol level. Norway recognizes .05 per cent; Sweden .05 per cent as being the level above which it is illegal for anyone to drive. In the United States, about 22 states have adopted the level of .10 per cent as the level at which the presumption of driving while under the influence is accepted. Other states, including Kansas, still recognize .150 per cent as the level at which a driver is judged between being sober and under the influence. Now, this is equivalent to eight standard drinks on an empty stomach in less than one hour for a 200 pound person. It is six drinks for a 140 pound person. If the object is to prevent motor car crashes,

the legal blood level should be set at .05 per cent, the level at which most, but not all, people do not show impaired driving ability. A pilot on an airlines plane must not consume even one drop of alcohol 24 hours before flight time.

Great Britain recently enacted legislation making it a statutory offense to drive a motor vehicle while having a blood alcohol level of more than .08 per cent. The act became effective last October. During the next four months, highway accident deaths fell by 22 per cent as against a similar period in 1966-1967 and is a 15 per cent reduction in total casualties recorded for the same period. Under Britain's new law, a uniformed police officer may request a driver to provide a specimen of breath for a test for the following reasons: (1) The officer has reasonable cause to suspect the driver of having alcohol in his body; (2) The driver has committed a moving traffic offense; (3) The driver has been in an accident. If the breath test indicates that the driver's blood alcohol level is above the legal limit, he is arrested and taken to a police station. Persons who refuse to provide a specimen of breath are liable to fine of up to \$120 and may be treated as though they had taken the test and it was positive. At the police station another breath test is taken and he is required to provide a specimen of blood for laboratory analysis.

Pedestrian Deaths and Injuries

Approximately 20 per cent of the yearly automobile death toll is due to automobiles striking pedestrians. In the urban community, 50 per cent of deaths are pedestrians. These pedestrian deaths fall into three categories. In the first category, the young children in the very early age group, perhaps one year to four years of age, who are playing unsupervised in the streets. In many instances, these children come from families of the lower income group and the mothers are quite young, and have more than one child. The second group, comprises a group of middle-aged or above, in which as many as 70 per cent of pedestrians killed have a high blood alcohol level above .150 per cent. These individuals are killed because they are intoxicated and do not observe street signs or safe pedestrian walking practices. The third age group is the elderly in which vision and general sensory perception is impaired. Most of these individuals are physically and mentally handicapped as a result of the degenerative diseases and they are unable to protect themselves from vehicular traffic.

Seat Belt Injuries

It is true that the two-inch lap belt has produced serious injuries secondary to the high "g" forces

exerted on the belt and transmitted to the abdominal cavity. The lap belt does not prevent flexion of the body and the head still strikes the interior of the automobile, such as the instrument panel, the steering wheel, or possibly the windshield, or the frame of the car, producing serious head injuries. In a head-on collision, after tremendous forces of several thousand pounds transmitted from the belt to the localized area of the abdomen, this causes rupture of the intestine, tearing of its mesentery with secondary bleeding, or rupture of the bladder, the pancreas, the spleen, or any internal organ. This abdominal trauma is frequently difficult to diagnose early. The addition of the oblique torso belt is an improvement as this tends to prevent forward flexion of the upper torso. If this belt is not properly placed, it can cause severe injuries to the cervical spine and can also produce chest injuries. Both belts should be kept snug, if they are used. The pregnant woman is particularly vulnerable to injury of the fetus and spontaneous abortion. In these cases, the belt should be worn but it should be kept as low as possible on the pelvis, and should be kept buckled snugly to the body. Although seat belt injuries are serious, they permit survival and prevent ejection from the car or fatal head or chest injuries.

Measures to Control Highway Deaths and Injuries

The 55,000 deaths per year in this country result in a huge health and economic cost approximating 10 billion dollars. Although control measures would necessarily be expensive, it appears that as in most safety practices the overall saving would be great.

Highways are continuously being improved, particularly the interstate highways which have a death toll far below the undivided highway. On the divided highway, it is recommended that a fence be erected between the two lanes of traffic to prevent cross-over crashes. Highway signs on the shoulders of the highway should be designed so that the stress of a crash would safely break away the steel post. The concrete pillar should be protected by a fence such that a head-on collision is not possible. In the rural communities, highway deaths are extremely common and nobody has come up with a good solution for prevention.

Continued progress should be made in the design of automobiles to withstand crashes and make them survivable for the occupants. Engineers, at the present time, know how to build automobiles with increased strength built into the cabin area such that it cannot be deformed, and the motor mounted such that it will not be pushed back into the cabin compartment. The Ford Motor Company this year on

its 1969 models had made a major step forward in completely clearing the right side of the front seat of the instrument panel such that forward flexion of the occupant will not result in head injury. The steering column, the steering wheel and padding for the driver has been improved so as to result in less injuries. If the public would recognize the advantages of this type of automobile, and would support the automobile companies in this type of program, much progress could be made. Another major step forward would be to build in energy-absorbing materials in the front end of the car which would result in controlled deceleration. Much improvement needs to be implemented in restraint systems.

The driver of the car is responsible for far the greatest majority of highway crashes. About four per cent of the population are chronic alcoholics and about 80 per cent of these individuals have a driving license. These individuals are responsible for approximately 60 per cent of highway deaths. Over 45 per cent of the responsible drivers have a blood alcohol level over .200 per cent. At the present time, many of the alcoholics who are convicted in the police court of alcoholism take their case to a higher court and the decision is reversed. They may be reversed due to a technicality such as the fact that the blood was not drawn by a physician, or the jury may be loathe to convict an alcoholic. All drivers involved in accidents should be investigated for previous record of accidents or previous charges of driving while intoxicated. The blood level for the presumption of driving while intoxicated should ideally be at .05 per cent. The National Highway Safety Act under its suggestions for standards for the states recommends .10 per cent. In fact, 10 per cent of funds available to the states for financially supporting their safety program cannot be obtained unless this level is recognized. Utah is the only present state which has set the level at .08 per cent.

Alcoholic drivers should have their licenses revoked until they have been rehabilitated, and have been pronounced safe for driving by a psychiatrist.

The largest number of deaths are occurring in the 15 to 24 age bracket. It would appear that an aggressive educational and testing program is indicated among these young drivers.

In the older age group, physicians should be allowed to report patients with diseases that would make driving for them unsafe.

Improved emergency care measures should be implemented. Approximately eight per cent of people who survive a traffic accident die on the way to the hospital. In Vietnam, the rate is only four per cent. This results from helicopter evacuation from the scene, and quick treatment by a resuscitation team.

Many legal problems are involved in the development of adequate legislation. Motor vehicle accidents have clogged the legal machinery in most states. Trials involving vehicle damages and injuries are running several years behind schedule. The backlog is increasing yearly. This is so serious that it now threatens a breakdown in the judicial process.

It will be difficult to change our automobile oriented culture. It is comparable to the poor results achieved with people who have vascular disease, or emphysema to stop the use of tobacco. It has not been easy to persuade the automobile industry over a period of more than 50 years to design automobiles with crash-survivability in mind. The liquor industry has consistently lobbied against legislation regarding legal recognition of low blood alcohol levels as evidence for presumption of driving while intoxicated.

References

1. *The Prevention of Highway Injury*. The proceedings of a symposium held April 19-21, 1967. Edited by Melvin L. Selzer, M.D., Paul W. Gigas, M.D. and Donald F. Huelke, Ph.D. Published by the Highway Safety Research Institute, the University of Michigan, Ann Arbor, 1967.
2. *Preventive Medicine*. Edited by Duncan W. Clark, and Bryan MacMahon. First edition, 1967. Chapter 33. The Prevention of Accidents by William Patton, Jr.
3. *The British Medical Journal*: The New Safety Act, 1967. October 7, 1967, p. 39.
4. Campbell, H. B.: Traffic Deaths Go Up Again. *JAMA*, Vol. 201, No. 11, p. 861.
5. Markush, Robert E.: Motor Vehicle Accidents in United States, 1906-1964. *JAMA*, Vol. 203, No. 2, January 8, 1968.
6. Huelke, Donald F. and Gigas, Paul W.: Causes of Death in Automobile Accidents. *JAMA*, Vol. 208, No. 13, March 25, 1968.
7. Wawler, J. A.: Problem Drinking Among Drunken Drivers. *JAMA*, Vol. 200, No. 2, April 10, 1967.
8. Brown, George W.: The Role of Alcohol in Iowa Motor Vehicle Accidents. *Journal of Iowa Medical Society*, Vol. 57, No. 2, February 1967.
9. Krantz, John C., Jr.: Drugs and Driving. *Maryland State Medical Journal*, January 1967.
10. Mirkin, Abraham J.: Medical Conditions and Driving Ability. *Maryland State Medical Journal*, January 1967.
11. Campbell, Horace E.: Built-in Car Crash Protection: A Design for Living. *Journal of the Iowa Medical Society*, December 1961, p. 753.
12. McCarroll, James R. and Haddon, William, Jr.: A Controlled Study of Fatal Automobile Accidents, New York City. *Journal of Chronic Diseases* 15:811-826, 1962.
13. Wawler, Julian A. and Turkel, Henry W.: Alcoholism and Traffic Deaths. *The New England Journal of Medicine*, Vol. 275, No. 10, September 8, 1966.
14. Hoff, Ebbe Curtis: Alcoholism Prevention in a Drinking Society, *International Journal of Psychiatry*, Vol. 5, No. 1, January 1968.
15. Campbell, Horace E.: Murder by Design: Three Ways to Stop It. *The Journal of the Kentucky State Medical Association*, Vol. 61, No. 8, August 1963.
16. Haddon, William, Jr.: Highway Safety: A Progress Report. *Journal of the Georgia Medical Association*, 56:456-459, November 1967.
17. Birrell, J. H. W.: Blood Alcohol Levels in Drunk Drivers. *The Medical Journal of Australia*, Vol. 2, No. 23, December 4, 1965.
18. *Medical Aspects of Traffic Accidents*, Harold Elliott, Editor. Proceedings of the Montreal Conference, 1955.
19. *Medical Tribune*. 25,000 Fatalities Traced Each Year to Drunk Drivers. Report, Washington Bureau, Thursday, September 5, 1968.

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Atrial Septal Defect—

*Spontaneous Obliteration of a Significant Left-to-Right Atrial Shunt: Documentation by Serial Catheterization and Angiocardiographic Studies**

THELMA C. MASCARINAS, M.D., K. R. SHANKAR, M.B., M.R.C.P.,**

RONALD M. LAUER, M.D., and

ANTONI M. DIEHL, M.D., *Kansas City, Kansas*

SPONTANEOUS CLOSURE OF ATRIAL septal defects seldom has been confirmed.^{1, 2, 4, 5, 9} The purpose of this presentation is to report a case of a girl in whom a significant interatrial communication underwent spontaneous functional closure by the age

was slightly increased in its width of split varying minimally with respiration (*Figure 1*). Mild cardiomegaly with a minimally dilated pulmonary artery and slight pulmonary plethora were noted radio-

An interatrial communication with a small to moderate left-to-right shunt in a child underwent spontaneous obliteration at three and one-half years of age as observed clinically and documented by serial cardiac catheterization and angiocardiographic studies. Possible anatomic and physiologic mechanisms for explanation are presented and discussed. This relatively newly established phenomenon may alter the indications for surgical closure of atrial septal defects particularly in early childhood.

of three and one-half years, and to propose several mechanisms which might explain this phenomenon.

Case History

This little girl was first seen at the University of Kansas Medical Center at the age of five and one-half months for evaluation of a murmur. Auscultation revealed a Grade III/VI moderately prolonged, ejection-type systolic murmur at the pulmonic area and a normal-to-slightly diminished pulmonic component of the second heart sound which

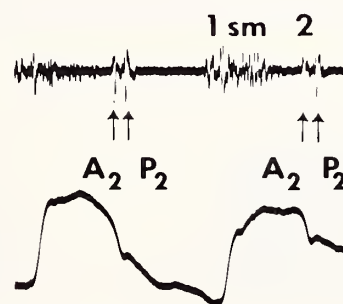
* Presented in part at the Section on Cardiology, American Academy of Pediatrics Meeting, Washington, D. C., October 24, 1967. From the Section of Pediatric Cardiology, Department of Pediatrics, University of Kansas School of Medicine, Kansas City, Kansas 66103.

** Trainee in Academic Pediatrics supported by the National Institute of Child Health and Human Development, Department of Health, Education and Welfare, Training Grant 1 T1 MD 00086-01.

PHONOCARDIOGRAM

PULMONIC AREA

1964



CAROTID REFERENCE

1967

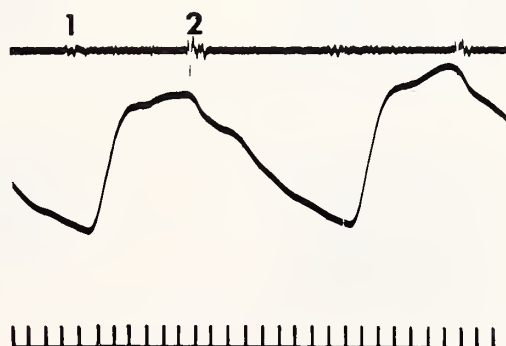


Figure 1. Phonocardiograms done in 1964 at the age of 11 months (top) and in 1967 at the age of 3½ years (bottom). A2: aortic component of the second heart sound; P2: pulmonary component of the second heart sound; sm: systolic murmur. Note the systolic ejection murmur in 1964 and its absence in 1967.

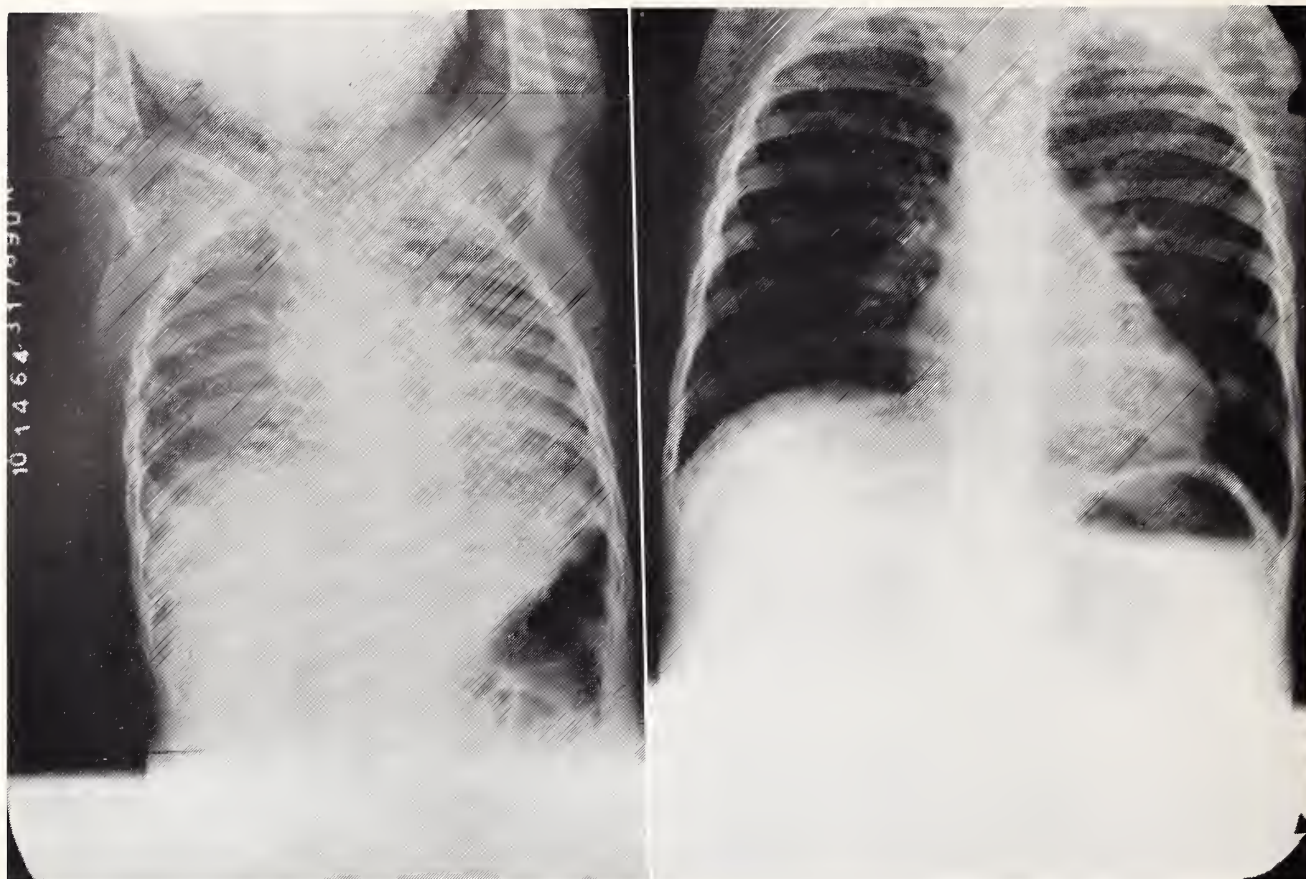


Figure 2. Chest roentgenograms in 1964 at age of 11 months (left) and in 1967 at age of 3½ years (right). Note the slight pulmonary plethora, mild cardiomegaly and minimal dilatation of the pulmonary artery prior to spontaneous closure of the atrial septal defect.

graphically (Figure 2). In addition the electrocardiogram showed right axis deviation to $+120^\circ$ with evidence of right ventricular hypertrophy (Figure 3). On vectorcardiography right ventricular hypertrophy of the diastolic overloading type was documented (Figure 4). A clinical diagnosis of an atrial septal defect of the secundum type was made with a small left-to-right shunt and perhaps an associated mild pulmonic stenosis.

At eleven months of age cardiac catheterization was performed (Table 1) because of suspected intermittent cyanosis as observed by the mother. The growth and development were normal and clinical cyanosis was not documented. The physical findings were unchanged and no tachypnea or signs of congestive heart failure were present. A stepup in oxygen content of 2.0 volumes per cent from the right atrium to right ventricle was noted resulting in a pulmonary to systemic flow ratio of 1.3. There was mild right ventricular hypertension of 42/0 mm Hg and an associated 22 mm Hg peak systolic gradient across the pulmonic valve. In the levogram following selective pulmonary artery angiography contrast media was noted to flow from left-to-right across

the atrial septum. Retrograde selective left ventricular angiography demonstrated the ventricular septum to be intact and there was no patent ductus arteriosus. The left atrium was entered via an interatrial communication.

Two and a half years later, at the age of three and one-half years, a decrease in intensity of the murmur was noted on auscultation and confirmed by phonocardiography (Figure 1). The split and the pulmonic component of the second heart sound were normal. The electrocardiogram and vectorcardiogram as well as the chest roentgenogram were normal (Figures 2, 3 and 4). Repeat cardiac catheterization (Table 1) demonstrated no oxygen stepup in the right cardiac chambers by oximetric data. Ascorbic acid dilution curves also showed no early appearance when the indicator was injected into the pulmonary artery and the detector was placed in the right ventricle (Figure 5). The systolic gradient between the main pulmonary artery and right ventricle was no longer present. Again, the left atrium was entered via an interatrial communication, probably a patent foramen ovale. Selective pulmonary artery angiography showed the atrial septum to be intact on the levogram.

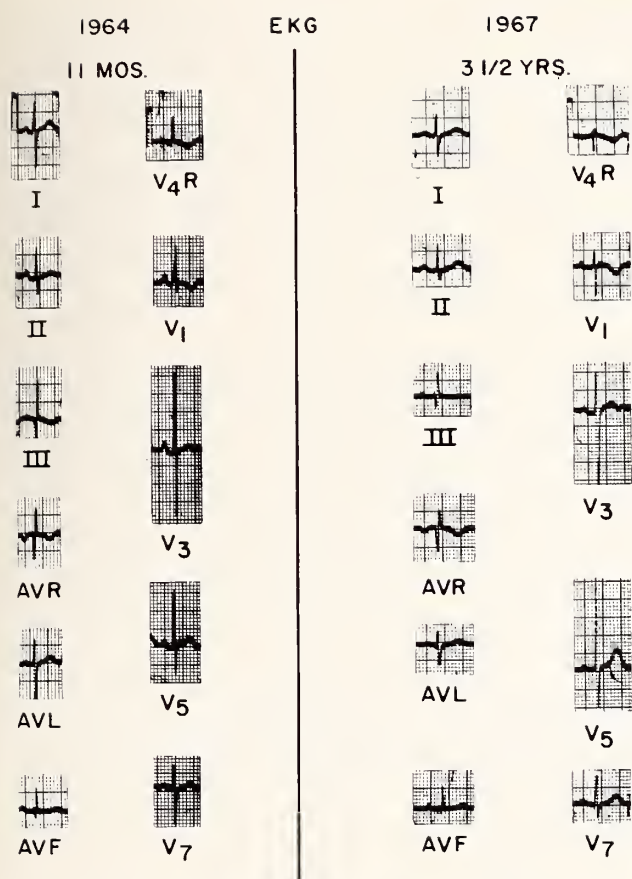


Figure 3. Electrocardiograms in 1964 at age of 11 months (left) and in 1967 at age of 3½ years (right). Note the right axis deviation and right ventricular hypertrophy prior to atrial septal defect spontaneous closure.

Discussion

Unlike ventricular septal defects, spontaneous closure of an atrial septal defect has infrequently been reported and rarely documented. Review of the literature shows 14 cases of spontaneous functional closure of atrial septal defects, 12 with hemodynamic confirmation and two with clinical documentation.^{1, 2, 4, 5, 9} The true incidence of this phenomenon is difficult to establish because many isolated atrial septal defects are asymptomatic during infancy and therefore escape detection. Hoffman, *et al.*⁵ reported four of sixteen infants with atrial left-to-right shunts with spontaneous closure during infancy. Only one had mild cardiac symptoms. All had normal cardiac silhouettes radiographically. The atrial septal defect of a patient reported by Timmis⁹ underwent spontaneous closure at the age of 3 years and 9 months and this was believed to be related to myocarditis at one year of age. According to Cayler² and Hoffman⁵ the incidence of spontaneous atrial defect closure is 25-30 per cent during infancy. Spontaneous closure of large left-to-right flow atrial septal

defects with congestive heart failure and with associated cardiac lesions also has been reported.²

Several theories have been proposed attempting to explain the spontaneous closure of atrial septal defects. Timmis⁹ attributed the presence of myocarditis at an early age as an important factor for closure. Myocarditis may cause tissue destruction with repair by fibrosis and subsequent sealing of the atrial septal defect. Edwards³ suggested that the growth of the heart may result in a progressive change in the shape of the septal defect from an oval to an elliptical configuration until finally the margins come together and close. Roberts⁶ and Simmons⁸ independently suggested that proliferation of fibrous tissue may explain the spontaneous closure of fenestrated ventricular septal defects. Cayler² pointed out that the hydraulic physical forces of high velocity flow across the defect tends to draw the edges together. However, this probably is not as important a stimulus to closure of atrial septal defects as it is in ventricular septal defects since the velocity is much lower in the former. Postnatal downward growth of the lower margins of the septum secundum may result in a progressive decrease in the size of the fossa ovalis leading to closure.²

Atrial septal defects of the fossa ovalis type may

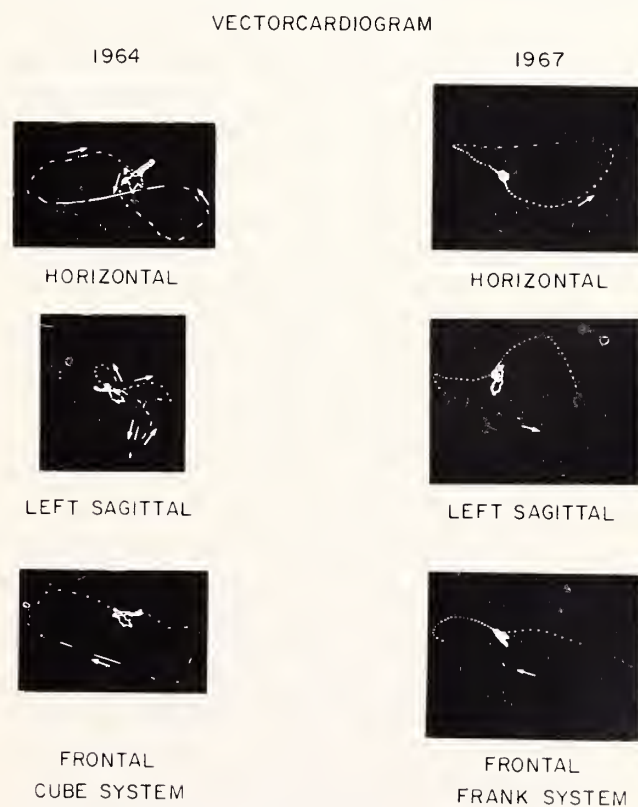


Figure 4. Vectorcardiograms in 1964 at age of 11 months (left) and in 1967 at age of 3½ years (right). Note the right ventricular hypertrophy before spontaneous closure of the atrial septal defect has occurred.

Cardiac Catheterization Data				
	1964		1967	
Site	% Saturation	Pressure mm Hg	% Saturation	Pressure mm Hg
Inferior Vena Cava	59		77	
Superior Vena Cava	57		68	
High Right Atrium	57		68	
Mid Right Atrium	58	Mean 1	73	Mean 3
Low Right Atrium	58		75	
Right Ventricle at Tricuspid Valve	68		73	
Right Ventricle Mid	69	42/0	72	20/0
Right Ventricle Outflow	68			
Main Pulmonary Artery	68	20/8	72	17/6
Left Atrium	95	Mean 3	92	Mean 6
Left Ventricle		100/0	95	90/10
Aorta	95	100/60		
QP/QS	1.3		1	

Table 1. Cardiac catheterization results done in 1964 at the age of 11 months and again in 1967 at the age of 3½ years. QP/QS: ratio of the pulmonary to systemic blood flows. In 1964, note stepup in oxygen saturation at the right ventricular level due to a left-to-right shunt at the atrial level with streaming and the mild pulmonary stenosis (22 mm. Hg systolic gradient between the right ventricle and pulmonary artery). In 1967 the pressures are normal and there is no shunt.

be secondary to overstretching of the valve of the foramen ovale resulting from dilatation of the left atrium secondary to a patent ductus arteriosus or a ventricular septal defect with a very large left-to-right shunt.⁷ Obliteration or reduction in size of the left-to-right ventricular or ductal shunt will result in a return to normal size of the left atrium, followed by normal closure of the foramen ovale.

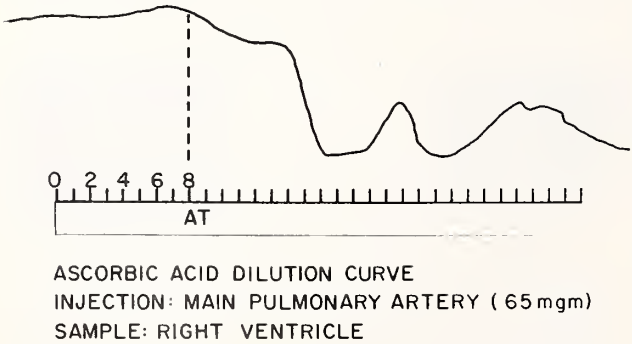


Figure 5. Ascorbic acid dilution curve with indicator injection into the main pulmonary artery (arrow) and detector in the right ventricle. Note normal appearance time (AT) at 8 seconds without an early "break."

When the foramen ovale is shorter than usual or the diastolic filling resistance of the left ventricle is slightly increased, then a hemodynamically measurable left-to-right shunt may occur at the atrial level. A similar situation would exist if the compliance of the left ventricle remained normal but that of the right ventricle increased. As the foramen ovale flap grows and lengthens the left-to-right shunt obliterates and normal closure or sealing of the foramen ovale occurs. Conjecturally, if left ventricular compliance were low and diastolic filling resistance somewhat increased, perhaps the condition could represent the mildest form of the hypoplastic left heart syndrome. With time, as the left ventricle enlarges as a response to normal flow, the compliance of that chamber would increase, thereby reducing the left ventricular diastolic filling resistance and a concomitant fall in the left-to-right atrial shunt. These factors when accompanied by normal foramen ovale flap growth would then lead to obliteration of the shunt and perhaps eventually anatomic closure. These mechanisms are probably applicable to the current case in report.

Although spontaneous closure of interatrial communications with associated complex cyanotic congenital heart disease, such as transposition of the great vessels, tricuspid atresia, mitral atresia and total anomalous pulmonary venous drainage has not been reported, such an event would be detrimental to blood flow and may be catastrophic to the patient. This phenomenon of spontaneous closure of ventricular septal defects in complex cardiopathies has been reported.⁶

Since interatrial communications may close spontaneously the indications for surgical closure of this type of defect in early childhood deserve re-examination despite the current low operative mortality. Those hemodynamically significant left-to-right shunts that respond to medical supportive management should be followed without surgery until the likelihood of spontaneous obliteration or significant reduction in magnitude can be eliminated.

References

1. Braudo, J. L., Moguilevsky, H. and Shaffer, A.: Spontaneous closure of atrial septal defect in infancy. A report of four cases. Abstract and presented at Section on Cardiology, American Academy of Pediatrics Meeting, Washington, D. C., October 24, 1967.
2. Cayler, G. G.: Spontaneous functional closure of symptomatic atrial septal defects. *New England Journal Med.* 276:2, 65-73, January 12, 1967.
3. Edwards, J. E.: Congenital malformation of the heart and great vessels. In: *Pathology of the Heart*. Edited by S. E. Gould, Springfield, Illinois, Charles C Thomas, 1953, p. 288.
4. Hartmann, A. F., Jr. and Elliott, L. P.: Spontaneous physiologic closure of atrial septal defect after infancy. *Am. J. Cardiology* 19:2, 290-292, February 1967.
5. Hoffman, J. I., Danilowicz, D. and Rudolf, A. M.: Hemodynamics, clinical features and course of atrial shunts in infancy (Abst.). *Circulation* 32 (Supplement 2):113, 1965.
6. Roberts, W. C., Morrow, A. G., Mason, D. T. and Braunwald, E.: Spontaneous closure of ventricular septal defect: anatomic proof in adult with tricuspid atresia. *Circulation* 27:90-94, 1963.
7. Rudolph, A. M., Mayer, F. E., Nadas, A. S. and Gross, R. E.: Patent ductus arteriosus: clinical and hemodynamic study of 23 patients in the first year of life. *Pediatrics* 22: 892-904, 1958.
8. Simmons, R. L., Moller, J. H. and Edwards, J. E.: Anatomic evidence of spontaneous closure of ventricular septal defects. *Circulation* 34:38-45, 1966.
9. Timmis, G. C., Gordon, S. and Reed, J. O.: Spontaneous closure of atrial septal defect. *JAMA* 196:1, 17-19, 1966.

HEREDITARY CANCER STUDY

The Medical Genetics Section of the Department of Preventive Medicine and Public Health at Creighton University School of Medicine, Omaha, Nebraska, is interested in the study of patients showing an increased incidence of any histological variety of cancer in their families. Of particular interest to us is the cancer family syndrome, characterized by: (1) increased frequency of adenocarcinoma of all sites, particularly of the colon and endometrium, (2) early

age at onset of cancer, (3) increased occurrences of multiple primary malignant neoplasms, and (4) autosomal dominant inheritance. To date, we have investigated six families fulfilling all of the above criteria (Lynch, H. T., and Krush, A. J.: Heredity and Adenocarcinoma of the Colon, *Gastroenterology* 53:517-527, 1967), and have corresponded with physicians in Europe who have described two separate and non-related families which also fulfill the above criteria.

Physicians with patients known to have a familial cancer background may write to Henry T. Lynch, M.D., Associate Professor and Chairman, Department of Preventive Medicine and Public Health, Creighton University School of Medicine, 657 North 27th Street, Omaha, Nebraska 68131.

We invite your cooperation in our studies which will include a genealogical and medical investigation of the entire kindred in each case. All information obtained will be shared with family physicians in order to facilitate cancer control.

OCCUPATIONAL HEALTH

A survey of the literature in the field of occupational health has resulted in the publication of the second edition of the "Occupational Health Bookshelf," a reference list of more than 250 books selected on the basis of their value to practitioners in the broad field of health in relation to occupation.

The list, which was compiled by a committee of the Industrial Medical Association under the chairmanship of J. S. Felton, M.D., is an enlargement of the first edition which was published in 1963. The current list indicates 19 basic references. The listings are grouped under headings as follows: Absenteeism, Aerospace Medicine, Aging, Air Pollution, Alcoholism, Disability and Disability Evaluation, Emergency Medical Care, Environmental Health, Environmental Physiology, Ergonomics, Historical Background, Industrial Hygiene and Toxicology, Industrial Safety and Accident Prevention, Mental Health in Industry, Noise and Hearing Conservation, Occupational Dermatology, Occupational Diseases, Occupational Health Administration, General Occupational Health, Occupational Health Nursing, Preventive Medicine and Public Health, Radiologic Health, Rehabilitation and Employment of the Handicapped, Vision Conservation and Workmen's Compensation.

Also included is a separate list giving addresses of the 105 publishers of the recommended references. In addition, 15 periodicals in the field are listed.

Copies of the Bookshelf are available at 40¢ each from the Industrial Medical Association, 55 East Washington, Chicago, Illinois 60602. A publication order form listing more than 70 IMA publications and reprints is also available.

A Case Report—

Idiopathic Orthostatic Hypotension

E. G. ADVINCULA, M.D.,* and
THOMAS J. LUELLEN, M.D.,** *Wichita*

Introduction

IT WAS IN 1925 THAT Bradbury and Eggleston published the original description of disabling orthostatic hypotension. Several reports followed this subsequently in the literature. These various cases described could be more or less categorized into three different entities.

The first is the primary or idiopathic variety which is characterized by dysautonomia, e.g., postural hypotension, anhidrosis, sexual impotence in otherwise normal individuals. In such cases, there are no pathological lesions demonstrable. However, in 1966 Openheim and his group from Oxford reported two cases of idiopathic orthostatic hypotension where degenerative changes were present in the intermediolateral column of the spinal cord. The second group of patients are those with a demonstrable or recognizable disease such as multiple sclerosis, diabetes mellitus, tabes dorsalis, pernicious anemia, Addison's disease, severe anemia, etc. The third arbitrary group, and the most severe, belongs to the Shy-Drager variety which is characterized by orthostatic hypotension, other prominent dysautonomias and somatic neurological findings. These cases usually reveal pathologic findings involving the autonomic nervous system, corticobulbar and corticospinal tract.

To label a case as an idiopathic or primary type, it is necessary to eliminate several conditions that belong to the other arbitrary variants. It is entirely possible that the Shy-Drager syndrome is a severe variation or a late state of the idiopathic variety. Whether they are an appurtenance of the same spectrum is open to question.

The case we are reporting here is of the idiopathic variety. The patient presented postural hypotension, anhidrosis, fatigue and bladder dysfunction. We were unable to find evident disease to explain her clinical picture. The results of diagnostic procedures and treatment are also described.

Presented here is the case report of a 65-year-old woman with orthostatic hypotension, anhidrosis and bladder dysfunction of four years' duration. Autonomic nervous function was found impaired. Response to drug regimen, consisting of Ephedrine, Florinef, and Ritalin was short-lived and inadequate in maintaining a satisfactory ambulatory blood pressure. The addition of the Jobst counterpressure suit in the treatment produced a stable, more or less normal, blood pressure. She has resumed intermittently her job as a beautician and has done fairly well as of June 1968.

Case Report

A 65-year-old woman was admitted to the hospital on March 1, 1967, because of postural hypotension, dizziness, and fatigue of four years' duration. She had been on Ephedrine, 20 mg four times a day, and Florinef (9-alpha fluoro hydrocortisone) which helped her initially; however, response lasted only a few months. A trial to increase the Florinef with the addition of Ritalin was futile.

For several weeks prior to admission, her symptoms became progressively disabling, so that she was almost bedridden.

A review of systems revealed constipation and bladder dysfunction, in addition to the dysautonomias described. She had had no previous surgery and there was no history of venereal disease. She had had a well controlled hypothyroidism for 11 years.

The physical examination revealed a well developed, well nourished female in no acute distress. The general physical examination was entirely negative except for the positional hypotension and fixed pulse rate (*Table 1*). Laboratory findings were normal. The 17-OH corticosteroid was slightly elevated. A blood volume study (*Table 2*) and Levophed infusion test (*Table 3*) were done.

In other studies made, an intradermal injection of metacholine (10 mg) produced no pilo erection; a

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TABLE 1

COMPARATIVE BLOOD PRESSURE LEVELS AND PULSE RATE OBTAINED; BASELINE AND AFTER TREATMENT MODALITIES

<i>Positions</i>	<i>Baseline</i>		<i>With Florinef 1.8 mg</i>		<i>With Florinef 1.0 mg Plus Jobst Counter- pressure Suit</i>	
	BP	PR	BP	PR	BP	PR
Recumbent	100/60	74	180/90	75	180/88	75
Sitting up	80/40	72	150/80	75	160/70	75
Standing up	60/0	50	80/60	60	118-130/70-85	70

standard sweat test with a heat lamp showed no hydrosis response except on a small area over the right shoulder. Changes in her baseline blood pressure were not produced by cold pressor test, Valsalva maneuver, or mental stress.

The significance of these procedures will be discussed in the text.

Hospital Course

The presence of nervous system disease was not found by neurological examination. Florinef was increased gradually up to 1.8 mg, at which dose an average blood pressure of 90/50 was obtained in the upright position. This enabled the patient to walk to and from the bathroom and around her room. Remarkable improvement was observed upon the application of a Jobst counterpressure suit. The upright ambulatory blood pressure was maintained between 118-130/70-85. The Ephedrine and Florinef were continued.

Comment

All patients complaining of dizziness with postural changes should be investigated for orthostatic hypo-

tension. Defining the etiology may be exhaustive, but will be fruitful and advantageous for the patient. The management of this group of patients is more or less similar. The therapeutic program includes: (1) vasopressors, such as Ephedrine; (2) agents such as Florinef to increase the blood volume; and (3) mechanical appliances, as the Jobst suit, to increase the venous pressure. Our patient was labeled as having idiopathic or orthostatic hypotension because we were unable to find the cause. The procedures done on this patient, to test her autonomic nervous system, have been described by several authors interested in this field. We will attempt to correlate our results in relation to her dysautonomia.

The impaired metacholine response indicates a possible postganglionic block or disease. The abnormal sweat and cold pressor test signified a central or efferent sympathetic tract interruption. The ability to hyperreact to norepinephrine injection reflected an intact vasoconstriction of hypersensitive blood vessels. This exaggerated response among this type of patient has been described consistently by other authors. The finding of an increased urine cortisol could be attributed to her previously bedridden state. In

TABLE 2
BLOOD VOLUME STUDIES*

DATA	<i>Without Florinef*</i>		<i>With Florinef†</i>	
	PATIENT	PREDICTED	PATIENT	PREDICTED
Total blood volume	4,200	5,700	4,500	4,420
Total RBC	1,350	2,500	1,580	1,850
Plasma volume	2,850	3,300	2,940	2,570

* 1963.

† 1967.

TABLE 3
RESULT OF LEVOPHED INFUSION TEST (0.04 GAMMA/KG/MIN)
(LEVO-ARTERENOL)

Positions	Before Levophed		During Levophed		8 Min. Post-Levophed	
	BP	PR	BP	PR	BP	PR
Recumbent	110/60	78	240/110	120	120/80	80
Sitting up	100/60	78	240/100	120	95/60	80
Standing up	60/0	77	220/110	118	95/90	70

fact, Lipscomb *et al.*, demonstrated elevations of plasma and urine cortisol in normal patients who were voluntarily made bedfast for two weeks. This was explained as a response of the hypothalamico-pituitary-adrenal axis to the decreased circulating blood volume associated with bed rest.

Florinef (9-alpha-fluro hydrocortisone)

The pressor effect of this steroid was thought to be due to the increased extracellular fluid that it produces. This is controversial. The other hypothesis is that Florinef induces secondary electrolyte changes in the blood vessel itself. After the infusion of this drug an increase in the intracellular sodium and potassium was observed in the aorta of rats. As a result, waterlogging and decreased vascular lumen follows. This later event increases the peripheral resistance and produces hypertension.

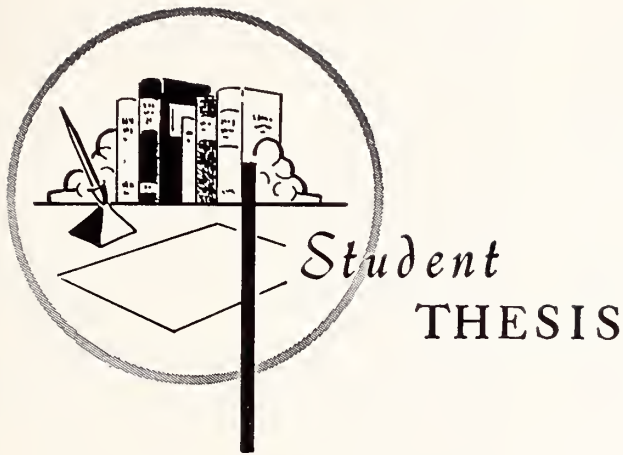
Our patient responded to this drug initially; whether tolerance developed later is speculative. High dosage did not give a comfortable and stable blood pressure. However, after application of the Jobst counterpressure suit, combined with a modest dose of Florinef, the patient was able to maintain an ambulatory blood pressure level.

References

1. Thomas, J. E. and Schirger, A.: Neurologic manifestations in idiopathic orthostatic hypotension. *Arch. of Int. Med.* 8:204, February 1963.

2. Razabi, M. *et al.*: Postural hypotension associated with anhidrosis and unchanging pulse. *Arch. of Int. Med.* 5:106, 657, November 1960.
3. Levin, Ravenna and Weiss: Idiopathic orthostatic hypotension. *Arch. of Int. Med.* 114, July 1964.
4. Schneider, P. B.: Observations on the effect of Levarterenol and hypertension II. *Arch. of Int. Med.* 110:240, August 1962.
5. Schirges and Molnar: Idiopathic orthostatic hypotension: Effect of Florinef and Aldosterone. *Geriatric*, June 1964.
6. Hohl, R. D., Frame and Schatz: Shy Drager variant of idiopathic orthostatic hypotension. *Am. J. Med.* 39, July 1965.
7. Hickler, Haskin and Hamlin: The clinical evaluation of faulty orthostatic mechanism. *Med. Clin. N. Amer.* 44:1237, 1960.
8. Lipscomb *et al.*: Endocrine response to orthostatic hypotension in quadriplegia. *Arch. Physical Med. and Rehab.*, July 1966.
9. Schwartz, G. A.: The orthostatic hypotension of Shy and Drager. *Arch. Neuro.*, 16, February 1967.
10. Johnson, Oppenheim, Spalding: Autonomic failure with orthostatic hypotension due to intermedio lateral column degeneration. *Quarterly J. of Med.*, Series XXXV, No. 138, April 1966.
11. Lewis, Daniel and Dunn, Marvin: Orthostatic hypotension syndrome. *Amer. Heart Journal* 14:3, September 1967.
12. Editorial: Orthostatic Hypotension. *Lancet* 1:635, 1960.
13. Shy, G. M. and Drager, G. A.: A neurological syndrome associated with orthostatic hypotension: A clinicopathologic study. *Arch. Neurol.* 1:511, 1960.
14. Berner, J. H., Jr.: Orthostatic hypotension in diabetes mellitus. *Acta Med. Scand.* 143:336, 1952.
15. Sieker, H. O., Burnum, J. F., Hickman, J. B. and Penrod, K. E.: Treatment of postural hypotension with a counter pressure garment. *JAMA* 161:132, 1956.





Enuresis: A Literature Review

NEIL E. ROACH, M.D.,* *Wichita*

Introduction

THE PURPOSE OF THIS PAPER is to attempt to discuss in an organized fashion the mass of literature concerned with enuresis, and hopefully to clarify some aspects of the problem. At least it will serve to express concurrently some of the varied and contradictory concepts concerning etiology and treatment.

Definition

Enuresis does not appear to be subject to a precise definition. The major difficulty being the variable age at which children achieve bladder control. This age is dependent on developmental tempo, the training procedures, the personality make-up of the child, the emotional climate in the home, the sex of the child, and a variety of other factors, some as yet unknown. Nevertheless most authors would seem to agree with Sperling in defining enuresis as "the condition in which a child continues to wet himself consistently, either during the day and/or at night, after he has passed the age when toilet training should be completed, that is, after the age of two and a half to three years." However it should be kept in mind that an otherwise normal child will occasionally fail to attain control until later. Wallgren found that 99 per cent of the Swedish children he followed gained urinary continence by 24.35 months. However, such early control has not

been consistently found by other authors. Klackenberg found 13 per cent of his subjects were wetting past age three, and Thorne found 16.1 per cent did not stop wetting until after age five. All of these studies may be criticized because of biased population sampling, so the figures probably do not apply to the "general population." However, they serve to emphasize that the three year age demarcation is arbitrary and indicates only that the majority of children will be continent by that time.

In addition, enuresis must be distinguished from incontinence in which bladder control is lost and passage of urine is automatic. The enuretic is aware of bladder distension and can control its emptying but with greater difficulty than normal individuals.

Some authors include in their definition of enuresis the condition that the passage of urine be involuntary. It appears that this might not be precisely true, because of the attempts that some children will make to disrupt or avoid therapy. Many studies do indicate the child is asleep during the period of wetting, but uncooperative children are of necessity excluded from these studies.

History

Sperling states that voluntary control of urination is a social custom and not an organic necessity. It is not to be found in the literature when this custom emerged, but Garrison describes a mixture containing equal parts of juniper berries, cyprus, and beer that was suggested as a remedy in the Papyrus Ebers which is dated 1550 B.C. Glicklich found it mentioned by Paul of Aegina who suggested, "Burn the crop of a cock, and give it to the patient to drink in tepid water," as naturally efficacious. In

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Roach completed his internship at St. Francis Hospital, Wichita, in June 1968.

the Middle Ages, St. Catharine of Alexandria and St. Vitus were appealed to for relief.

Paulus Bagellardus discussed many remedies for treating enuretics in his book published in 1472. He particularly recommended administration of the flesh of a ground hedge-hog to the offender. It was again discussed by Thomas Phaer in his *Boke of Children* published in 1544 and by Nicolaus Fontanus in 1642.

In the eighteenth century magic elements began to give way to the anatomic influences and it was recommended that blisters be applied to the sacrum because the nerves to the bladder pass thru that area. In 1762 a case report of successful treatment by that means appeared in the literature.

The nineteenth century practitioner was more direct. In May, 1864 John Adams suggested "encircling the root of the penis in a common elastic ring made of vulcanized rubber." Wilkes elaborates on Dr. Adams' article and describes the desirability of using a rubber ring rather than an iron clamp which was in common usage.

In this century the discussion of causes and cures continues, and will form the bulk of this paper. In general the method of study has become more elaborate, occasionally controlled, and frequently statistically analyzed. However, it has been hard to beat the performance of Grover who reported a series of 131 children whom he treated with rest, fluid restriction, and diet in 1918. His treatment resulted in cure of 42 per cent and improvement of 44 per cent.

Incidence

It is apparent from the second section of this paper that figures on the incidence of enuresis may vary widely. This variation results principally from differences in defining at what age wetting is to be considered enuresis, differences in the source of material, and socioeconomic-ethnic differences.

Klackenberg found that the incidence decreased from 13 per cent at age three to 4 per cent at age six; however, he only considered those individuals who had never been dry. Somewhat contradictory to this is Thorne's data which shows 16.1 per cent enuretic after age five, with 2.5 per cent who did not gain control of their urine until age 18. Unfortunately his data was obtained from army selectees who might be expected to give false information in hope of escaping induction, or who at best must rely on remote memory. In another review of enuresis in military recruits it was found that 32 per cent alleged bedwetting after age six!

Socioeconomic-ethnic differences might account for the early age of continence found by Wallgren. Stein *et al.* found the heaviest concentration of

enuretic children over four years old in the lower social classes. Prior to four years of age he could detect no difference in incidence among different social groups. He also found no difference between children going to day school and those in boarding schools. However, he found an increased incidence in all children from unstable homes regardless of which school they attended.

Perhaps indirectly related to socioeconomic class data is that concerning enuresis in delinquent children. Hader found that the probability of enuresis in the past was correlated with a greater incidence of delinquent offenses. Additional implications made by this study will be discussed later.

The literature indicates that there is a lesser incidence of enuresis in Jewish children than in gentiles. However, this may well be an artifact of sampling or an inference made from insufficient data.

It is generally accepted that parents who were enuretic have a greater risk of having children who are enuretic than do parents who were not enuretic. Bakwin found that one or both of the parents were enuretic in 72 per cent of the cases he studied. The data of Frary and Hallgren support Bakwin's findings, although they found fewer parents that were enuretic. Stockwell and Smith found 63 of 100 parents of enuretic children were also enuretic.

Boys predominate in most reports on the incidence of enuresis. Kanner found that 62 per cent of his enuretic patients were males. Lickorish reported similar figures, but found that they corresponded to the predominance of males entering his clinic for all reasons. Blomfield and Douglas seem to have presented the most reliable data in a prospective study of more than 4,000 children. They found that bedwetting was consistently more frequent among boys than among girls. However they could not demonstrate statistical significance until after age seven and a half.

Etiology

The very number of theories concerning the etiology of enuresis probably indicates that the cause is largely unknown. Most importantly, enuresis is a symptom and therefore enuretics have in common only a similar expression of some abnormality. The disease process responsible for the symptom need not be the same in all cases.

Silberstein and Blockman have categorized enuretics as: (a) *Persistent*, in which proper training has never taken place. (b) *Regressed*, in which control was once attained, but has since been lost. In this instance the enuresis is a symptom of emotional disorder. (c) *Ego disturbed*, these individuals suffer from serious ego dysfunction, and enuresis may be one of the less serious symptoms. (d) *Organic*, in

which an organic basis for enuresis is present. This classification unfortunately leaves no appropriate category in which to place enuretics who have never been dry and who exhibit psychiatric disease other than ego dysfunction, i.e., character disorders.

Werry and Cohrssen have also attempted to categorize enuretics on an etiologic basis. They classify enuretics into five groups: (a) *Genetic*, children in which there is a familial predisposition to enuresis. (b) *Maturational*, children that are maturing more slowly than "normal." (c) *Pathological*, children with a non-familial organic basis for enuresis. (d) *Psychogenic*, children with significant psychiatric disease which is the basis of their enuresis. (e) *Habit deficiency*, children that have not developed the proper conditioned response to the conditioned stimulus of the full bladder. The maturational and habit deficiency categories would appear to overlap in many instances. In addition the "habit deficiency" classification suffers from being a theoretical entity which is not consistently supported by data.

Probably the most generally accepted categories are those proposed by McKendry. He classifies all enuretics as: (a) *Organic*, (b) *Psychiatric*, or (c) *Essential*. This classification has the virtue of simplicity, and offers the opportunity for considerable expansion within each category without overlapping into the adjacent categories. However, the categories need not be considered mutually exclusive.

RELATIONSHIP OF ORGANIC DISEASE TO ENURESIS

A considerable variety of organic conditions have been described as the actual or predisposing causes of enuresis. Campbell listed 33 organic conditions which he considered to be the cause of enuresis in 150 cases studied by him. These included metabolic diseases such as diabetes mellitus and diabetes insipidus, anatomic abnormalities ranging from hypertrophic labia to cord bladder, and such infectious diseases as pyelonephritis and tuberculosis. All of these patients were referred to his clinic after medical or psychotherapy had failed.

Other authors have attributed enuresis to phimosis, hyperthyroidism, a convulsive disorder, reversal of normal urine concentration, allergy, obstructing adenoids and tonsils, pinworms, spina bifida, a dominant gene or polygenes, and underdevelopment of bladder capacity.

Some of the conditions just mentioned have undoubtedly given rise to lack of urinary control in individual instances. It must, however, be emphasized that the coincident occurrence of two entities does not demand that there be a causal relationship. It is especially unfortunate that there is rarely any comparison of the prevalence of similar organic disease in non-enuretic individuals and enuretic pa-

tients. This was done in the case of spina bifida occulta, and it was found to be as prevalent in children with urinary control as it was in enuretic children. It is apparent also, from the results obtained by treating organic disease in enuretic patients, that there might well be some other concurrent cause of the enuresis.

RELATIONSHIP OF PSYCHIATRIC OR PSYCHOLOGICAL FACTORS TO ENURESIS

Enuretic individuals are more likely to be emotionally disturbed than children who have been dry at night since the age of two or three years. It has been found that there is a high prevalence of enuresis in individuals with character disorders, and ego dysfunction. It has been considered a depressive equivalent, and enuretic adults had significantly more pathology on seven of nine clinical scales of the Minnesota Multiphasic Personality Inventory (MMPI).

Pierce *et al.* speculated that enuresis may be a "dream substitute," and Sperling stated that it might represent vicarious ejaculation or menstruation. The latter also felt that enuretics were prone to serious psycho-sexual difficulties as adults if the conflicts expressed by the enuresis were not resolved. Unfortunately the psychoanalytic information, however interesting, is based on the study of small numbers of selected patients and probably does not represent most enuretics accurately.

Tapia *et al.* presents evidence that enuresis is not an emotional symptom. He states that it is "an ubiquitous happenstance, the frequency of which is more related to age cut-off and statistical maneuvering, than to adjustment, other emotional symptoms, or future prospects of mental ill-health." In addition, there is much discussion as to whether many of the symptoms of emotional disease seen in enuretics are not due to the enuresis rather than the cause, because symptom substitution does not often occur and behavior may improve after successful treatment.

Although the bulk of the evidence appears to support the contention that enuretics have a greater risk of emotional disease, and it is not difficult to see how it may be used as an expression of such disorder, the majority appear to have no problems apart from their symptom of enuresis. It must be remembered that enuresis is not a symptom with one etiology, similar in all cases, but may occur in a variety of psychiatric situations.

ESSENTIAL ENURESIS

This term is generally used to refer to that enuresis which persists from birth, but is subject to spontaneous remission at or before puberty.

One of the most popular concepts regarding the etiology of this category of enuretics is the theory that it is due to delayed maturation of those parts of the central nervous system concerned with control over micturition. This is neither proven nor disproven at this time, but if this were the case other signs of delayed development might be expected to accompany enuresis. This has not been supported by controlled data.

It is also thought that this type of enuresis might be the result of abnormally deep sleep, and electroencephalographic studies have been interpreted to demonstrate this. This theory has not consistently stood up to clinical or laboratory testing, and therefore remains to be proven.

One of the most attractive theories concerning persistent enuresis is supported by Eysenck. He feels that it results from failure to learn to control the bladder either due to poor training or lack of motivation. He attributes remission at puberty to the motivation of the heterosexual strivings. This theory appears to be supported by considerable evidence, such as success of conditioning devices in treatment, and the high incidence of remission when any type of motivation is provided. This theory also remains to be proven.

Diagnosis and Treatment

Diagnosis and treatment are very closely related because the former is frequently begun by a therapeutic trial of one of the more successful symptomatic treatments.

Takayasu states that all enuretic children should have an electroencephalogram, and Sperling feels that psychiatric evaluation is necessary in order to avoid symptom substitution. However, this is not the majority opinion. Campbell is quite explicit in saying, "When enuresis persists despite medical, physio-, or psychotherapy, a urologic examination is indicated." Additional testing might be specifically indicated by the history, physical examination, or urinalysis, and if so it should not be delayed for therapeutic trial. Therefore, it is imperative that a careful history be taken and a physical examination and urinalysis be performed.

There are four major forms of treatment of enuresis: (1) suggestion and encouragement, (2) medication, (3) increasing bladder capacity (physiotherapy), (4) conditioning. It is unlikely that these are separate entities, and it is certain that suggestion is a component of the other three forms.

One of the customary means of encouragement for the enuretic child has been the use of a "star chart" on which the child receives a gold star for every dry night. McGregor used this and various means of suggestion and obtained a cure rate of

70 per cent within two months. These children remained dry at follow-up of 18 months to six years.

Medication has been used alone or in combination with other techniques for many years. Hutchison mentioned the use of belladonna, ergot, ephedrine, and pituitrin. These were alleged to relax the bladder, tighten the sphincter, or decrease urine production respectively. Bakwin still advocates the use of belladonna. Testosterone has been used when enuresis was associated with certain cases. Kanner lists 19 other drugs which have been variously recommended for use in enuresis. Unfortunately, the efficiency of these drugs is not established because of lack of controlled studies, and frequently because of a lack of theoretic rationale.

Recently (1960) imipramine was found to have been associated with relief of enuresis in a psychiatric patient. Since that time considerable literature has appeared attempting to evaluate the efficiency of antidepressant drugs in the treatment of enuresis. Imipramine has been reported by various authors to produce 100 per cent cure or no effect. Probably the most reliable study demonstrates 69 per cent improvement. Amitriptyline has also been tried in this regard, but insufficient data is present to allow any definite conclusions at this time.

Several authors have demonstrated that enuretic children may have smaller bladders than non-enuretic children. They advocate that enuresis be treated by forcing fluids during the day and encouraging the child to hold his urine as long as he can. One hundred per cent to 33.3 per cent cure rate has been attributed to this method. However, it is generally used in conjunction with drugs and considerable suggestion, so the significance of bladder enlargement appears to be equivocal at best.

Probably the most successful single treatment method at present is the "bed buzzer" or conditioning apparatus. It is debated whether it works on an operant or Pavlovian conditioning mechanism, or whether it just keeps the child from "deep sleep." Results have varied from 90 per cent cure to no significant improvement over explanation and reassurance without the "buzzer." This method has the disadvantages of being complicated, expensive, and requiring the cooperation of parents and child. In addition, ulceration of the skin due to electrolysis has been reported.

It is impossible at this time to outline a treatment regimen that will be universally successful. Generally it is suggested that some combination of suggestion, encouragement, fluid restriction at night, medication, and conditioning would be helpful if the history, physical examination, and urinalysis do not indicate specific therapy. If this is not successful then

(Continued on page 41)



Sudden Onset of Abdominal Pain and Swelling, Melena and Hematemesis

THIS WAS THE FOURTH University of Kansas Medical Center admission for this 77-year-old white man, a retired custodian from St. Louis, Missouri. His chief complaint at time of admission was of abdominal pain and swelling.

Four days before admission he was awakened by diffuse, dull, "deadening," lower abdominal pain. This was followed some two hours later by vomiting, described at first as brownish and bitter. The vomiting was made worse by food or fluids. The same day he passed several black, watery stools and noticed a rapid increase in his abdominal girth. The abdominal pain, vomiting, and dark stools persisted up to the time of his admission.

In 1965 he was admitted for the treatment of pulmonary tuberculosis, considered minimal but active. In 1966 adenocarcinoma of the transverse colon was resected. None of the seven regional nodes was involved. Early in 1967 he was hospitalized nine days for evaluation of a nodule, 3.5 cm in diameter, in the right mid-lung field.

His father had died at the age of 76 of pneumonia. His mother was thought to have died of influenza at the age of 60. One daughter is living and well. For the past several years he had had a chronic cough productive of thick, sometimes purulent, sputum. He also had moderate dyspnea on exertion for the preceding several years. He had had moderate and inter-

mittent ankle swelling for the preceding two years. There was no history of exertional chest pain. He said that he vomited red blood once about a month before this admission. His estimated weight loss was about 15 pounds within the preceding month.

On physical examination the blood pressure was 165/75 with a pulse rate of 95. His pulse was regular and rhythmical. His respiratory rate was 30, and his temperature was 36.5°C. In general he appeared to be mildly obese, and was complaining moderately of abdominal pain. There were grade II arteriosclerotic changes in the optic fundi. His lips and mouth were dry. There was moderate venous distention of the neck veins in a sitting position. The anterior-posterior diameter of the chest was increased. On auscultation there was a prolonged expiratory phase with scattered inspiratory bronchi over all lung fields, and moist rales were heard in both lung bases. The heart rate was regular. The point of maximal impulse was 2 cm to the left of the mid-clavicular line. One observer reported a right ventricular thrust. There were no thrills or murmurs, but the heart sounds were described as distant and difficult to evaluate. The abdomen was markedly distended, tense, and tympanic with dullness to percussion over both flanks. There was generalized tenderness. The bowel sounds were hyperactive at admission. The abdominal girth on admission was 43 $\frac{3}{4}$ inches at the umbilicus. There was 2+ pitting edema of the extremities.

On admission the hemoglobin was 15.4 grams per cent; hematocrit, 47 mm; leukocyte count, 13,500 (with 90 per cent segmented neutrophils, 8 per cent lymphocytes, and 2 per cent monocytes). The platelets were reported as adequate. The urine pH was 5;

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specific gravity, 1.009, and it contained a faint trace of protein; 6-8 hyaline casts, and 2-3 granular casts per high power field. The fasting blood glucose was 100; BUN, 26; and creatinine, 1.8 mg per cent. The serum sodium was 137; potassium, 4.6; chloride, 99 mEq per liter. The total serum protein was 5.9 grams per cent with an albumin component of 3.0 grams per cent. The total serum bilirubin was 0.9 mg per cent (direct bilirubin 0.4 mg per cent); alkaline phosphate, 3.3 units; SGOT, 18 units; blood ammonia, 50 mcg per cent. The 24-hour urine sodium was 8 mEq in a total volume of 150 ml. The prothrombin time was 14.2 seconds (control 12.2 seconds). On the tenth hospital day the hemoglobin was 13.2 grams per cent and the white blood count was 4,070 (with 81 per cent segmented neutrophils and 1 per cent bands). The platelets were "adequate." Two days later the hemoglobin was 12.4 grams per cent; hematocrit, 38 mm; white blood count, 750 (with 64 per cent segmented neutrophils, 23 per cent bands, and 12 per cent lymphocytes). The platelets were quantitatively decreased. The serum sodium was 142; potassium, 4.7; chloride, 100; and CO_2 , 30 mEq per liter.

The patient was hospitalized for 12 days. He was initially treated with intravenous fluids and nasogastric suction which returned small quantities of thin, dark brown fluid. The nasogastric tube was removed on the second hospital day, and the patient began ingesting small amounts of nourishment. During the next five days he vomited small amounts of coffee ground material. He then began passing melanotic stools and complaining of abdominal pain that was most severe in both lower quadrants. Over the next three days he became gradually more obtunded and refused oral medications. Diffuse abdominal tenderness persisted and he required frequent analgesics. Moist rales were heard in the right lung base two days before his death. He spiked a fever of 37.8°C for the first time four hours before death and died quietly the morning of the twelfth hospital day.

Dr. Mahlon Delp (moderator): Do you have any questions of Dr. Zabel?

David Johnston (student):* Could we have a better description of the liver at the time of operation in 1966? Was there any evidence of metastases?

Dr. Kenneth Zabel (resident in medicine): There was no gross evidence of metastases at the time of surgery.

Donald Leffingwell (student): Were bronchoscopy, sputum cultures, or sputum cytology done on the last admission?

Dr. Zabel: Sputum cytology was done, but no bronchoscopy.

Mr. Leffingwell: What were the results of the sputum cytology?

Dr. Zabel: Normal, class II cells.

Mr. Leffingwell: Did the patient have a history of hemoptysis?

Dr. Zabel: No.

Robert Janzen (student): Was there a history of smoking or alcohol ingestion?

Dr. Zabel: He smoked about a pack of cigarettes a day since the age of 20 years. He denied any alcoholic ingestion.

Dr. Delp: One of the medical students who talked to this man elicited the information that for quite some time he smoked three packs of cigarettes a day, but that he was gradually reforming. He had cut down to a pack-and-a-half a day, then he cut it down to a pack, and during the last year he was supposedly smoking eight to ten cigarettes a day. His story was a little different with different individuals.

Charles Empson (student): Could you give us a description of the abdominal findings during his hospitalization, specifically the changes in the character of the pain, and did he complain of postprandial, colicky, abdominal pain? Were there other episodes of melena and hematemesis other than those stated in the protocol?

Dr. Zabel: At the time of admission the pain was described as generalized, with tenderness and pain most severe in the infra-umbilical regions. This was most severe in the left lower quadrant. He was not taking oral nourishment at that time. Initially, the pain was said to have been worse after ingestion of any type of nourishment.

Mr. Empson: Were there other episodes of melena, or hematemesis not stated in the protocol before admission?

Dr. Zabel: Not to my knowledge.

Mr. Johnston: What was the blood pressure, temperature, and pulse records during his hospitalization?

Dr. Zabel: His blood pressure ran pretty consistently about 130/70 to 140/80 until 36 hours before death at which time it dropped. Twelve hours before death it was running about 100/60. Terminally, his pulse came up somewhat but not markedly; it was about 110. His temperature was persistently 36° to 36.5°C until about six hours before death, it then went up to 37.8°C .

Mr. Leffingwell: Could we have a description of his intake and output during his hospital stay?

Dr. Zabel: He was primarily on intravenous feedings of about two to three liters a day. Three days before his death he had one output that was just over 2000 ml. Two days before his death it had

* Although a student at the time of the conference in January, 1968, he, like the others referred to as students, received the M.D. degree in June, 1968.

dropped to 350 to 400 ml, and the day before death it was recorded as about 500 ml.

Mr. Empson: Did he ever have a positive Homan's sign?

Dr. Zabel: No.

Mr. Johnston: Was peritoneal aspiration done, and if so, were cultures, cytology and acid-fast studies performed?

Dr. Zabel: Peritoneal aspiration was done two or three days after admission. The cytology was described as normal, but no cultures were reported.

Mr. Johnston: Could you describe the peritoneal fluid?

Dr. Zabel: It was bloody.

Mr. Leffingwell: Were blood, sputum, stool and urine cultures done?

Dr. Zabel: No.

Mr. Janzen: At any time in this patient's illness were anti-cancer agents used?

Dr. Zabel: Yes. He was given 5-fluorouracil on the seventh, eighth, and ninth hospital days.

Mr. Empson: Could you give us a description of the drug course prescribed after the patient was found to have active tuberculosis in 1965, and was this patient ever given chloramphenicol during his hospitalization?

Dr. Zabel: To my knowledge he was not given chloramphenicol, and certainly not during this admission. He was taking INH at the time of admission and had been since 1965.

Mr. Janzen: Did he receive blood during his hospitalization?

Dr. Zabel: No.

Mr. Empson: During the follow-up after his operation for transverse colon carcinoma was the liver ever enlarged or nodular?

Dr. Zabel: No.

Mr. Johnston: Was an upper gastrointestinal x-ray study done on any previous admission?

Dr. Zabel: In 1966 he had a normal upper gastrointestinal study. He had no gastric analysis, and there was no cytology done.

Mr. Leffingwell: Were there repeat liver function tests?

Dr. Zabel: There is an alkaline phosphatase of 2.3 repeated about four days before his death.

Dr. Delp: He had had two values done in the previous 18 months and they were normal.

Mr. Janzen: Were amylase, lipase, or actual platelet counts performed?

Dr. Zabel: No.

Mr. Johnston: Could we have a better description of the terminal event?

Dr. Zabel: He was essentially comatose, and would respond only to pressure on his abdomen for the last 36 hours. That was the only way he could be

aroused. He gradually became more unresponsive and obtunded. His blood pressure started falling some 12 hours before death. He was found dead by a nurse about 3:30 in the morning.

Mr. Janzen: Was rebound tenderness ever noted?

Dr. Zabel: Yes.

Electrocardiograms

Mr. Janzen: We have two electrocardiograms. The first one was taken in July, 1967, approximately five months before the patient's final admission. It shows a normal sinus rhythm with a rate of 75. The mean QRS complex is directed at about +30 degrees. The PR interval is approximately 0.16. There is cupping noted in the ST segments in leads V-5 and V-6. There is voltage increase noted in the lead V-4; although not quite sufficient to warrant the diagnosis, it is suggestive of left ventricular hypertrophy.

The second electrocardiogram (*Figure 1*) was taken early in the course of the patient's final illness.

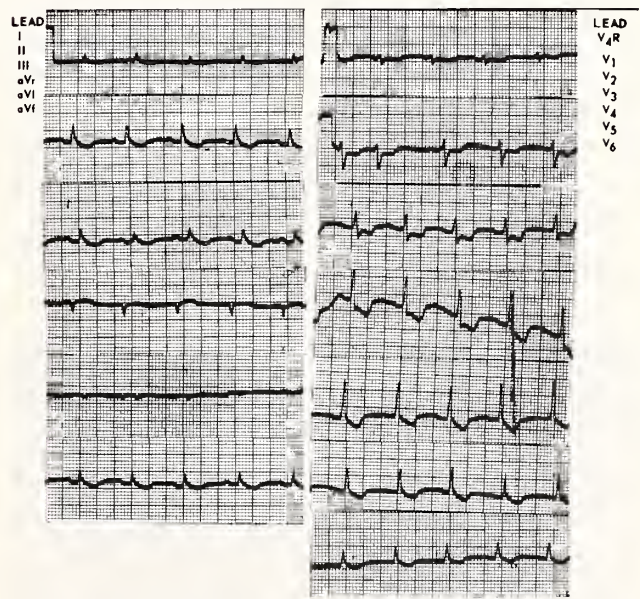


Figure 1. Electrocardiogram taken early in course of final illness.

It shows basically a normal sinus rhythm. One premature ventricular contraction is seen. The rate is approximately 100. The mean QRS axis is directed at +60 degrees. There is cupping now of the ST segments in leads 2, 3, aVF, and V-6. There is terminal ST segment depression noted in leads V-2 through V-5. Also, there is generalized reduction in the voltage in comparison with the previous electrocardiogram. In summary, I feel these electrocardiograms are significant in showing either myocardial ischemia or the digitalis effect.

X-Rays

Mr. Leffingwell: This patient had nine x-rays. A PA of the chest taken two years before this admission shows a deviation of the trachea to the right side of the chest, some granulomatous lesions in the right chest, flattening of the diaphragms on both sides of the chest, and increased markings in both bases. This was two months before the present admission. At present it is unchanged except for one area showing a 3.5 cm nodule.

A lateral of the last x-ray shows this same nodule probably in the anterior segment of the upper lobe.

A chest film taken on the present admission (*Figure 2*) shows the same changes with the deviation of the trachea to the right, a slight enlargement of the nodule, and an infiltrate in the right lower lobe.

A barium enema done in 1966 shows the suggestion of a lesion at the splenic flexure. Also, an enlarged liver. Spot films of the lesion at the splenic flexure showed an apple core lesion.

In an upper gastrointestinal study done on the last admission (*Figure 3*) a large ulcer crater shows in the lesser curvature of the fundus of the stomach, a gross distortion of the rugal patterns of the body and antrum of the stomach.

Five months before this last admission, a liver scan was done which showed an enlargement of the liver and spleen, and a possible mass at the top part of the liver. In a liver scan done on this last admission a decrease in uptake over the liver and decrease over the spleen was evident, which could be



Figure 2. Chest film taken on last admission.

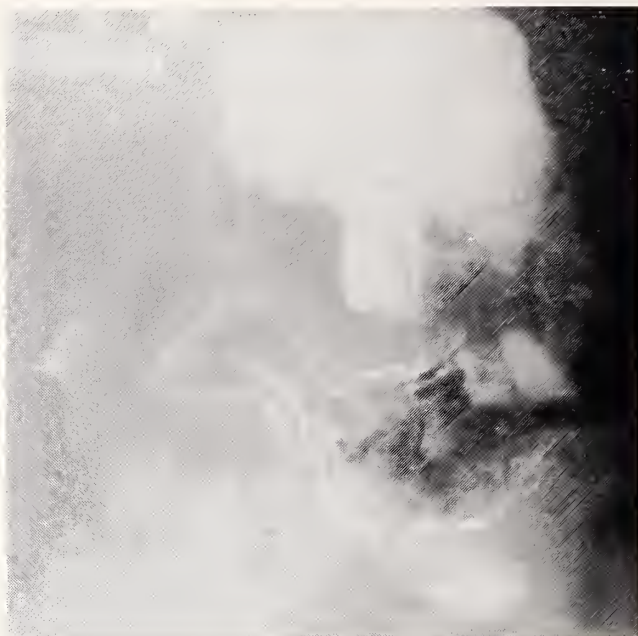


Figure 3. An upper gastrointestinal study showing ulcer crater.

compatible with ascites, and probably a gross infiltrative lesion of the liver.

I believe that these x-rays show a man with a mass in his lung which shows evidence of a healed granulomatous disease and emphysema; a neoplastic and filtrative lesion of the stomach; and evidence of adenocarcinoma of the colon with metastases to the liver.

Dr. Delp: Mr. Empson will now discuss the differential diagnosis.

Discussion

Mr. Empson: We are presented today with a 77-year-old white man who experienced a sudden onset of abdominal pain and swelling associated with dark stools and hematemesis. His condition rapidly deteriorated—ending in death two weeks later. Before his death it was demonstrated that the patient had space-occupying lesions involving both the lung parenchyma and the stomach. These findings, combined with a history of resection of an adenocarcinoma of the transverse colon 18 months before his terminal admission, and the presence of acid-fast bacilli in his sputum one year before this operation is very interesting. It is toward these events that we wish to direct today's discussion.

Twenty per cent of colon carcinomas are discovered in the eighth decade of life. Signs and symptoms vary with the segment of the colon involved. Five-year survival rates in patients with carcinoma of the transverse colon, without evidence of lymph nodes or other metastatic involvement, are in the range of 65 per cent. On the other hand, survival rates of carcinoma of the colon with visible involvement of the

liver at operation average nine months. Six per cent of these patients develop pulmonary metastases. Seeding of the peritoneum occurs in about 40 per cent of the patients with colonic carcinoma. Metastatic lesions involving the stomach are rare. Hepatic metastases, becoming evident six months to one year after an operation at which time no gross evidence of liver involvement was present, is not infrequent. Neoplastic seeding of the peritoneum may produce bloody ascitic fluid which may give rise to symptoms much like we see in this case. However, in the presence of a stomach lesion, melena, and hematemesis, we feel we have a better explanation.

A solitary mass lesion of the lung in a 77-year-old man with a history of smoking, chronic pulmonary disease, active tuberculosis, carcinoma of the colon, and a mass in the stomach is also very interesting. Size, radiographic appearance, presence of calcification, location, and history are important criteria in evaluating this lesion. One group of investigators found that in 215 solitary pulmonary nodules, 41 per cent were granulomatous. These two lesions are our primary concern. A granulomatous process must be considered in this patient. Granulomas commonly occur in the apex and periphery of the lungs. They are usually well demarcated and measure 2.5 cm or less in diameter.

Metastatic tumors must also be carefully considered in this patient. These lesions are usually multiple and bilateral. They are seldom cavitory and tend to occur in the lower lung fields. Considering the long history of the use of tobacco, the location of the lesion, and the radiologic appearance, we cannot rule out a primary carcinoma of the lung.

Gastric ulcerations pose certain radiologic diagnostic problems. Benign lesions, however, usually occur on the lesser curvature and have smooth, even margins. They are commonly less than 2.5 cm in diameter. Carcinoma of the stomach may be seen as a large, filling defect with mucosal irregularity and rigidity of the stomach wall together with fixation and change in stomach contour. Radiologic diagnostic acumen is in the range of 90 per cent. Gastric cytology and endoscopy are valuable adjuncts. The patient frequently presents with complaints of vague epigastric discomfort and weight loss. Melena and hematemesis are present in 7 per cent of these patients. Metastases to the colon occur in 10 per cent of these cases. Fifty-five per cent involve the liver, and 18 per cent spread to the lungs. Eighty-five per cent of these patients die within six months of the diagnosis.

Billroth, in 1869, reported the occurrence of multiple primary tumors. His criteria were a characteristic histological appearance of each tumor, separate location, and metastases unique to each lesion. These cri-

teria have been amended by others who feel the lesions must be malignant and distinct, and the possibility that they are metastatic foci must be excluded. One worker reviewed 37,580 patients with malignant neoplasms, including multicentric tumors: 5.1 per cent of these had multiple primary foci, and 2.8 per cent had primary tumors involving separate organs. No age group is exempt from this phenomenon. Family history of cancer seems to increase the likelihood of this occurrence. The chance of occurrence of a secondary primary tumor in a patient who has had a previous single neoplasm is greater than that of the normal population. This seems to suggest an alteration in host resistance. Polk found that 3 per cent of colon carcinomas were multiple at the time of detection. Three per cent of these patients had previous extra-colonic neoplasms. One-third of this latter 3 per cent may be expected to develop a subsequent colonic or extra-colonic neoplasm. Multiple primary malignant neoplasms seem to be more than a pathological curiosity. Finding one tumor does not rule out additional neoplastic disease.

In our patient we think that his terminal symptoms and signs relate to his total disease process. Ascites, melena, hematemesis, and abdominal pain can be explained in a variety of ways in this patient. We seek the most likely mechanism. Our patient had significant vascular degeneration with borderline heart function. Partial occlusion of the superior mesenteric artery is a likely event in our patient, but in the absence of definite documented history of postprandial abdominal pain we feel we need a better diagnosis.

Intestinal obstruction with strangulation is ruled out because of the lack of supportive x-ray findings. Twenty per cent of the cases of intestinal infarction due to causes other than strangulation reveal no evidence of vascular occlusion at autopsy. Ninety per cent of these patients have had congestive heart failure before death. This is an attractive possibility, but we feel we have a more likely diagnosis.

Portal vein occlusion may be due to cirrhosis, thrombosis, or invasion by tumor. Chronic incomplete obstruction is more common than complete obstruction. Abdominal pain, ascites with blood, melena, vomiting, ileus and small and large bowel infarcts, are all sequelae. We think that this is the most likely etiology of this patient's terminal illness. In summary, we believe that this patient had many diseases. Unique among them were multiple primary carcinomas. We postulate that the colonic and gastric lesions were separate and that one or both metastasized to the liver. In light of the patient's history we believe that the lesion in the lung parenchyma may be granulomatous, primary neoplastic, or metastatic disease. Differentiation with present criteria is not possible.

Dr. Delp: Thank you, Mr. Empson. Are there any variations from the diagnosis? Mr. Johnston?

Mr. Johnston: No.

Mr. Leffingwell: No. I think he had two primary carcinomas, possibly three, although we are not sure about the lung.

Mr. Janzen: I think he probably had multiple peritoneal carcinomatosis which would explain his bloody ascitic fluid at the end.

Dr. Delp: What about the immediate cause of death?

Mr. Johnston: I think a very likely possibility is endotoxic shock.

Mr. Leffingwell: I think it was terminal pneumonia.

Mr. Janzen: He might have had a severe hemorrhage from the gastric ulcer.

Mr. Empson: Gram negative shock.

Dr. Delp: I believe that this patient had quite an alteration in the last 48 hours of his life, being initiated by a rather sudden increase in pain in his abdomen. This may alter your thinking.

Mr. Johnston: Yes, I think it is difficult to evaluate his pain, primarily because if he were in endotoxic shock this would explain his comatose state, but I think another possibility would be that he had a portal vein thrombosis, and this later led to infarction of his bowels.

Mr. Leffingwell: If he did have a change of pain toward the end it could be due to a bowel or a viscus perforation.

Mr. Janzen: I would agree with perforation of a viscus.

Mr. Empson: That, or a superior mesenteric artery insufficiency.

Dr. Delp: In looking over this patient's history, which goes back more than 18 months, it was noted that he was anemic. From time to time he had a hemoglobin of 12 grams. There is one reading where it says that he had a hemoglobin of 15 grams. Most of the time he had a hemoglobin of 10 grams. During that time he was given iron and several other things were done in an attempt to correct his anemia. I think his serum iron was about 70 micrograms per cent. Do you think that has any pertinence to this discussion?

Mr. Johnston: I think with the evidence of gastric carcinoma he could have had exacerbation of, and bleeding of, an ulcer before this admission, which would have lowered his blood hemoglobin.

Mr. Leffingwell: I think in a man with a gastric ulcer, he had had the carcinoma of the colon before this and was probably bleeding from the carcinoma of the colon. He was a 75-year-old man at the time, and if receiving iron helped, I think that with the chronic bleeding, the chronic loss of blood, and the

stress on his bone marrow, he might have been extremely anemic.

Dr. Delp: Mr. Janzen, would you give me just a straightforward answer.

Mr. Janzen: The relationship between pernicious anemia and gastric carcinoma is fairly strong. He might have had pernicious anemia.

Mr. Empson: I think he had gastrointestinal bleeding.

Dr. Delp: The man had a serum bilirubin of 0.9 total and 0.4 direct; he had an alkaline phosphatase of 3.3, 2.3, etc. He had three alkaline phosphatase values. Would you comment about this?

Mr. Johnston: Yes, it is known that with metastatic lesions to the liver it is common to have normal liver function tests.

Mr. Leffingwell: I think he probably had enough functioning liver tissue left to give normal liver function tests.

Dr. Delp: You are sure that he has metastatic disease of the liver?

Mr. Leffingwell: Yes.

Dr. Delp: All right, are all of you sure he has metastatic disease of the liver?

Mr. Janzen: Yes.

Dr. Delp: All right, please explain the alkaline phosphatase 2.3.

Mr. Janzen: I would be a little more comfortable if it were higher. However, you can have normal alkaline phosphatase in the presence of widespread metastatic liver disease, and I am not sure of the reason for this.

Dr. Delp: I believe we had some other explanations for the ascites, but are there any additional comments you would like to make about that, concerning the etiology and pathogenesis for this man's ascites?

Mr. Johnston: A portal vein thrombosis.

Mr. Janzen: He could have had tuberculous peritonitis, but I think this is "far out."

Mr. Empson: Seeding of the peritoneum.

Dr. Delp: The second day the patient was here he had 5000 ml of fluid drawn off his abdomen. Would you comment?

Mr. Johnston: I think this was due to his portal vein thrombosis which would lead to abnormal amounts of accumulation of ascitic fluid.

Dr. Delp: One other thing, this man had a blood ammonia value of 50. He was comatose, he had extensive metastasis to his liver, so you said, Mr. Johnston, and he also had a portal vein thrombosis. Is that right?

Mr. Johnston: This is a possibility.

Dr. Delp: What do you think about this blood ammonia of 50 micrograms per cent?

Mr. Johnston: This is very difficult to explain.

Mr. Leffingwell: I think it could be explained that he still had enough functioning liver tissue left to detoxify.

Dr. Delp: Dr. Berry, would you make some straightforward comments about this patient?

Dr. M. C. Berry (internist): Following your admonition to keep this straightforward, I would like to say two or three things. The first is that I want to commend the students' discussion for the appreciation of the fact that this man was over 50, and therefore could have had more than one fatal disease. Secondly, the pulmonary nodule is a rather frustrating sort of a thing because it is paradoxical. Ordinarily a nodule over 2.5 cm. in diameter is malignant, rather than a granuloma, but by Harry Garland's cell doubling time he did not have this before, and this time he had it, and cell doubling times of carcinoma of the lung have been documented and they do not grow that fast. If it is a neoplasm, it almost certainly has to be metastatic. Finally, I would like to say that these are very interesting and rather definite findings, and they point unequivocally to the conclusion that he was a most interesting patient.

Dr. Delp: He is keeping up with you, Mr. Leffingwell.

Dr. William E. Ruth (internist): I would like to make several comments pertinent to the time we were taking care of this man's problem. First of all, I think there is little chance that the new lesions we saw in his lung were related to his tuberculous disease. The x-ray history of what happened to his tuberculous disease was not recounted here, but this man had an infiltrate and a positive sputum culture. With the initiation of therapy sputums converted to negative, the x-rays shadow went away completely. He then had an adequate course of chemotherapy. It is highly improbable that tuberculous disease caused his new disease in the lung.

Dr. Delp: you alluded to the original time this man was in the hospital being treated for his tuberculous disease, it was appreciated that he was anemic. The question came up whether this was on the basis of infection, or whether it was blood loss, or what, and all of us at times like this try to think in terms of preventive medicine. This man was worked up and nothing was found. He was put on the iron, and he got well and was dismissed from mind until he returned again six months later. Again he was found to be anemic, this time the lesion was found which was sort of a shock to us. As far as the new lesion in his lung is concerned, if one goes back and looks at the x-ray film which had been obtained about four months before that time, one could see the little "nubbin" of this occurring. So, one actually did have a growth rate that was documented on this man before his admission to the hospital. The proba-

bility was almost positive that this was a malignant lesion in the lung, and most likely metastatic.

Dr. Delp: Thank you, Dr. Ruth.

Dr. Stanley R. Friesen (surgeon): I have long since ceased to be surprised about what happens to patients who have cancer. I was convinced when this patient came back in the hospital that he had carcinomatosis. The two things that bothered me about him at this admission were that he had so much ascites and a normal-feeling liver, one which was biopsied 18 months before and found to be normal, with a normal alkaline phosphatase. But he had a very suspicious hepatic scan. I thought that he probably did have hepatic metastases. The other question was the pulmonary mass. I realized that it probably was a metastasis, yet one would not expect it in this patient because at the time of his operation, 18 months before, he had very small lesion in his colon, not that size makes any difference, but it was involving the serosa, and none of the lymph nodes were involved. Nor was the liver. Therefore, it seemed to be a little unusual that he would develop a single lung metastasis later, particularly with the absence of lymph node metastases, because it is assumed that lung metastases occur rarely. When they do, they occur in patients who have lymph node metastases with extension into the thoracic duct, lymphatic duct, spillage of these clumps of metastatic cells from the lymphatic thoracic duct into the subclavian vein, and then into the lung. This would be the usual route for pulmonary metastases, yet he did not fit this because his lymph nodes were not involved at the time of his resection 18 months before.

The clinical pictures of patients who have carcinoma of the colon and then do develop pulmonary metastases is so unusual and variable that I do not know how to explain a lot of the variance with which these patients can come back. I can recall one patient who had no lymph node metastases from a carcinoma of the ascending colon, but had a single liver metastasis. In ten months a second examination was done and he was found to be perfectly all right. Then, in 18 months he was dead of bilateral diffuse pulmonary metastases.

Another patient I can remember, which is at the opposite end of the scale, is a man in his forties who came in with a carcinoma of the sigmoid colon, and a lung metastases at the same time. A colectomy was done, and later a removal of a right pulmonary metastases was done. Twenty months later, a single lump showed up on the left lung and this was removed. Now, almost five years after the first time we saw him, at which time he had a single pulmonary metastasis, he is living and well. So, we have the whole spectrum of the patients who develop metas-

tasis late, or those that come in with them, and their prognosis seems to be different. This leads one to think that perhaps some of these metastases are not metastases at all.

The other point I wish to make is that when this patient was admitted this last time with abdominal carcinomatosis, the x-rays of the stomach showed an ulcer, and perhaps a malignant lesion of the stomach. This led me to look back over old operative notes of 18 months before, at which time we did a colectomy, a cholecystectomy, and a gastrocolotomy, and at which time the stomach appeared to be normal. We know that patients who develop a carcinoma of the stomach probably have a silent interval of approximately 22 months. That is, a tumor grows for 22 months before symptoms appear. We might have been able to see a primary carcinoma at that time, yet none was seen, and we had ample opportunity to see the stomach. I was confused at the time of his last admission as to whether or not he really had a second primary or just carcinomatosis. I think we used good judgment in not re-operating.

Dr. James B. Rhodes (internist): I would like to make some comments about the liver scan. It was my belief that he might not have had metastases to his liver because the defect on the initial scan was on the upper curvature of the liver. Scans are weakest in their interpretations in the outer borders of the liver. On the second scan he had quite a bit of ascites overlying the liver, and the technetium isotope that is used has a limited range of emissions. The liver function tests were relatively normal and were rather impressive. We tried to treat this man with oral fluids and because of his respiratory problems, intubation was not carried out.

I would like to comment on the attitude of the family. This was something which I have not encountered very often in the past, but I think that we are all going to be encountering it more in the future. The family had been told that the patient had metastatic cancer, that he was seriously ill, he was having a lot of discomfort, and would probably die. The family attitude was, "please keep him comfortable, but do not do anything to prolong his misery." They were even reluctant to have him transfused at the time. I think we will be seeing this attitude increase.

Dr. Delp: Dr. Gourley will now enlighten us about the autopsy findings.

Report of the Pathologist

Dr. William K. Gourley (pathologist): At the time of autopsy, the prosector encountered 6000 ml of straw-colored, slightly turbid fluid in the abdominal cavity, and from this was cultured *E. coli* and several other fecal organisms, principally alpha strep. There were extensive fibrous adhesions in the area of previous surgery, in the area of the stomach, the pancreas,

and the spleen. The area of previous resection was completely free of any evidence of tumor of the transverse colon. There were, however, firm white tumor nodules in perigastric and portahepatic lymph nodes. The heart was enlarged, weighing 420 grams, and had fairly mild mitral stenosis due to healed rheumatic disease. The lungs were edematous, and there was a circumscribed induration in the upper right lobe.

The stomach was distorted even before the pathologist got to it, and it showed, after having been opened along the greater curvature, a large ulcer in the body along the lesser curvature (*Figure 4*). There was complete penetration to the pancreatic bed and peri-

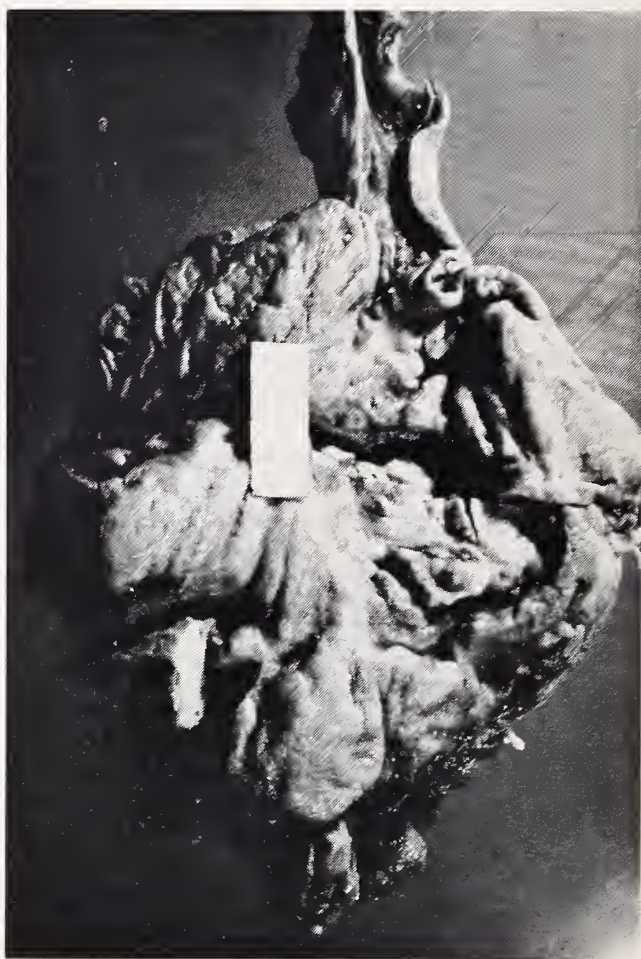


Figure 4. Perforated ulcer on the greater curvature of the body of the stomach.

pancreatic fat was seen in the base. There was a complete perforation under one of the overhanging edges. The mucosa around this large ulcer was distorted. The rugal folds were normal only toward the antrum, and the wall was greatly thickened, firm, and not pliable at all.

The lung lesion was in the anterior segment of the right upper lobe and was about 4 cm in diameter



Figure 5. A 3 x 4 cm circumscribed tumor mass in the right upper lobe of the lung.

(Figure 5). After fixation, it had a rather greasy, but still flaky appearing material within it. It was well circumscribed and could be traced to a bronchus.

Slides of the original carcinoma of the splenic flexure were reviewed and a typical adenocarcinoma of the mucosa of the colon was confirmed (Figure 6). Slides of the edge of the gastric ulcer revealed a different picture with a rather diffuse infiltration of small neoplastic cells apparently originating in the mucosa and extending down into the fibrous base and out into the surrounding submucosa (Figure 7). Many of these infiltrating cells had a "signet ring" appearance and sections of lymph nodes in the perigastric area confirm the impression that these are "signet ring" cells (Figure 8).

There were metastases throughout the lung, in either lymphatics or blood vessels, from this gastric carcinoma. The large lesion was entirely different, having a gross appearance of containing keratin debris. A close-up of the lesion illustrates typical squamous cells with intracellular bridges, individual cell keratinization and pearl formation (Figure 9). Quite clearly, this was a squamous cell carcinoma.

I think we can say with fair confidence that this man did have three primary neoplasms: one of the

colon; one of the stomach; and one of the lung. This case brings out several points of both theoretical and practical interest. Theoretically, we divide multiple primary neoplasms into two classes. In the first class are those neoplasms which arise in a single tissue or single organ repeatedly, but have the same histogenesis. These are the common tumors of the skin, larynx, urinary bladder, and epithelial tumors. The doctor must continually be re-examining the patient with this kind of tumor for reoccurrence.

The second major class of multiple neoplasms includes those tumors which arise from different tissues or different organs and has distinct histogenic appearances. The problems that this present might be put into the form of some questions. Does the occurrence of one primary neoplasm imply that there is an increased susceptibility of other organs to carcinogenic stimuli? Does the individual who survives one primary tumor have a greater chance of developing a carcinoma in another organ of distinct histogenic form? Available statistics show contradiction, as statistics usually do. The "best" statistics show that approximately one-twentieth of those per-



Figure 6. Photomicrograph of a section of the adenocarcinoma of the transverse colon with the typical pattern of infiltrating glands from the mucosa with little mucous production.

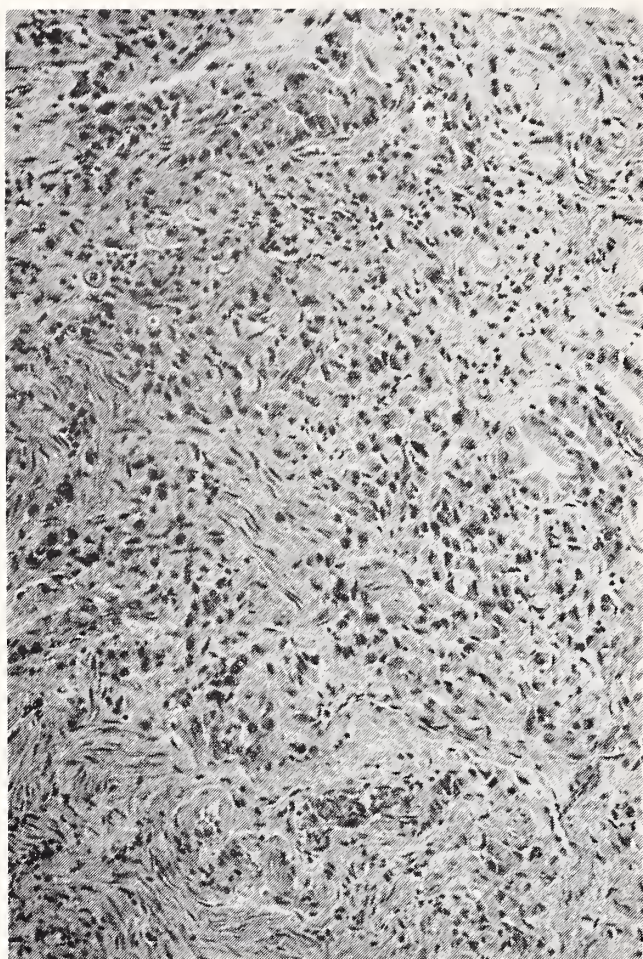


Figure 7. Photomicrograph of the gastric ulcer margin illustrating the diffuse infiltration of the mucosa (top left) and submucosa (bottom right) by neoplastic cells.

sons who have a primary carcinoma (other than those of the first class of the skin, urinary bladder, or larynx) will develop a primary carcinoma in some other tissue. (1) Studies from other cancer hospitals where large numbers of patients are seen indicate that the person who has one primary carcinoma has at least as great a chance of developing another primary neoplasm as the general population, and with some neoplasms the chance of developing a second primary cancer is even greater, particularly those of the intestinal tract. (2) The person who has a primary carcinoma in the intestinal tract, principally the colon, has approximately twice the probability of the general population of having a primary carcinoma arise elsewhere within the follow-up period. Some investigators have speculated on this kind of evidence and postulated that there is a tissue susceptibility—some tissues may be more susceptible to whatever carcinogenic stimuli exist than others. (3) If you think about it for a while, this man's neoplasia expressed itself in entodermal tissue (colon, stomach, lung), and perhaps this has some meaning.

The practical implication of this case is this: in a patient with a treated primary carcinoma who develops evidence of neoplastic disease within the follow-up period, how aggressive must you be in trying to find out whether it is a metastasis or a primary? I think this has been a very instructive case.

Dr. Delp: Thank you, Dr. Gourley, are there any questions?

Mr. Johnston: Was there any evidence of portal vascular occlusion of superior mesenteric or venous occlusion?

Dr. Gourley: No. The ascites was apparently due to two factors. One was the heart failure, and the second primary thing was the perforation, which had apparently been going on during the terminal course. It was a very small perforation and you can see the small bits of food material which were found in the inflammatory tissue on the peritoneum.

Mr. Leffingwell: How did the liver look?

Dr. Gourley: There was no evidence of metastases to the liver, only to the portahepatic lymph nodes.

Question from the audience: Were the kidneys normal?

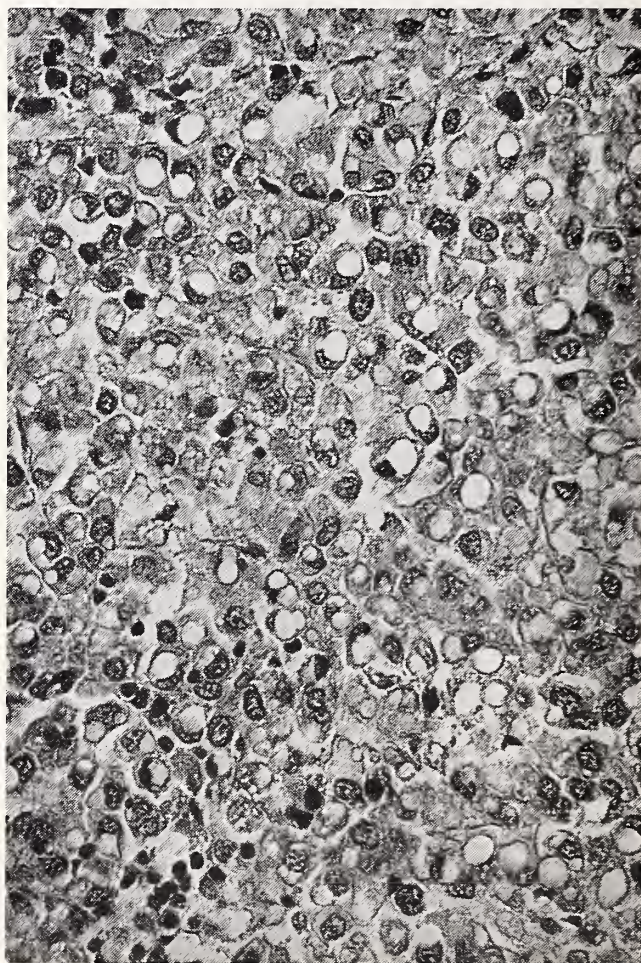


Figure 8. Photomicrograph of a perigastric lymph node replaced by metastatic adenocarcinoma cells. Many have a "signet ring" appearance.

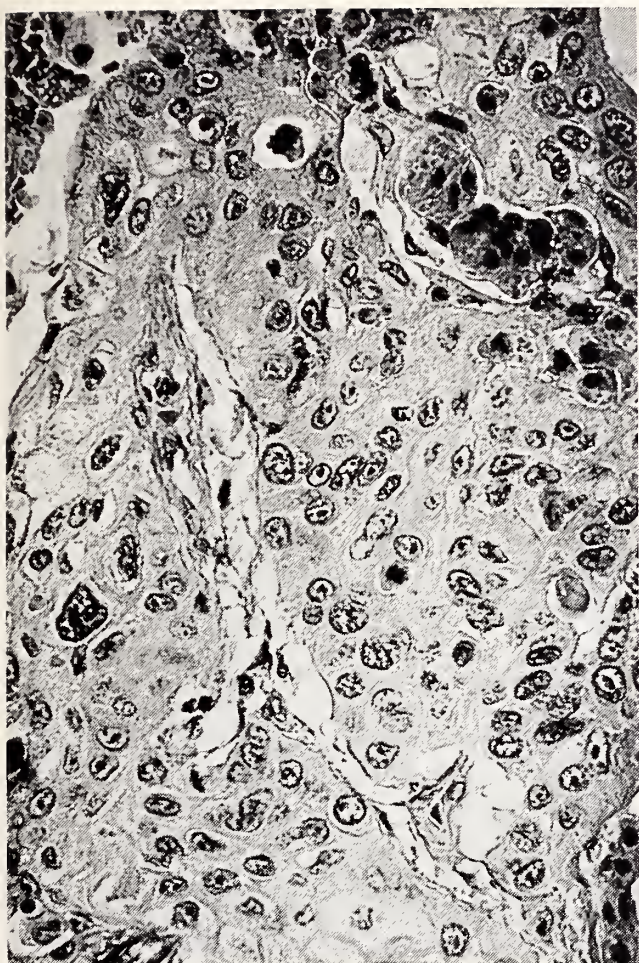


Figure 9. Photomicrograph of the large lung lesion. Intercellular bridges are visible (center of field) indicating a squamous cell carcinoma.

Dr. Gourley: Moderate vascular disease only.

Mr. Johnston: Were postmortem blood cultures done?

Dr. Gourley: Yes. The same organisms were cultured that were grown from the peritoneal cavity.

Dr. Dante G. Scarpelli (pathologist): Dr. Gourley, would you hazard a guess as to how the tumor could have been missed when the patient was examined at operation?

Dr. Gourley: Which tumor?

Dr. Scarpelli: The stomach tumor, 18 months before this last admission. Do you have an explanation for it?

Dr. Gourley: Yes. I think it is well known that the diffusely infiltrative type of carcinoma is difficult to recognize early. Essentially, it was a very diffuse, infiltrative carcinoma.

Question from the audience: Was there a lesion of the splenic flexure?

Dr. Gourley: No. The resection site was clean. There was no evidence of the colonic carcinoma.

Dr. Friesen: I wanted to make a point; the removal of the appendix 18 months before this might have

reduced immunity to cancer and therefore led to his developing two more primary neoplasms.

Dr. Jacob Frenkel (pathologist): I do not think we really know whether it is a matter of immunity or a matter of increased mutation rate. Unfortunately, statistics do not tell us anything about it. Dr. Gourley's previous presumption was that in endodermal tissue there certainly would be an increased mutation rate. I am sure Dr. Friesen's comment was more in the nature of a joke since the appendix in the adult human is not very likely to be significant, contrary to the situation in rabbits. I think it is certainly worthwhile to bring out, however, that in those instances with multiple tumors, if one looks closely, one should not think of immune failure in just one type of tissue. The other point which seems to be important is the unusual behavior of some tumor metastases. I think that the classical point of view overstates a direct route of the tumor origin to the site of metastasis. It has been shown repeatedly that tumor cells course in the blood stream in fairly large numbers compared to the number of metastases which finally grow. The irregular behavior is recent, due to the fact (which has also been inferred) that tumor metastases grow better in certain sites: that it is truly a statistical thing. The unpredictability, I believe, is the difficult thing rather than the simple account of things.

Question from the audience: Was there any bone marrow involvement which could have precipitated the anemia?

Dr. Gourley: No. There was no involvement of the bone marrow. The bone marrow was slightly hypocellular, but he did get chemotherapeutic agents. There was no tumor involvement of bone.

Primary Diagnoses

Ulcerated adenocarcinoma of the stomach with metastases to regional lymph nodes, the lung and the right adrenal gland.

Perforation of malignant gastric ulcer with acute peritonitis, moderate.

Moderately differentiated squamous cell carcinoma of the anterior segment bronchus of the right upper lobe of the lung.

Fibrosis and stenosis of the mitral valve consistent with healed rheumatic valvulitis.

Hypertrophy of the heart (420 grams).

Chronic and acute passive venous congestion of the lungs, liver and spleen.

Ascites, 6000 ml.

References

1. Baldwin, J. N. and Wisner, R. W.: Multiple primary neoplasms. *Am. J. Surg.* 111:230, 1966.
2. Milder, G. B., Schilling, J. A., Donovan, J. C. and Rendall, E. S.: Multiple cancer. *Cancer* 5:1104, 1952.
3. Kuehn, P. G., Beckett, R. and Reed, J. F.: Tissue specificity in multiple primary malignancies. *Am. J. Surg.* 111:164, 1966.



CP + T

Newsletter

Drug Dosage

THE GOAL OF administering drugs is to achieve an effective concentration or quantity of active compound in the patient for sustained periods of time. If we attain less than this level, the desired effect will not occur while, if we achieve a higher level, toxicity may occur. The quantity of drug in the patient is regulated by the magnitude of each dose, the frequency at which the dose is repeated, and the rate of elimination (excretion, sequestration, and metabolism) of the drug from the body. Most drugs are eliminated at a first order or exponential rate, i.e., a constant fraction of the drug present in the patient is eliminated in each equal time interval. The time interval required for elimination of one-half the drug present is known as the biologic half-life ($t_{1/2}$). An understanding of the $t_{1/2}$ of a drug is important for the rational use of drugs.

If we administer one dose (actual quantity may vary from drug to drug) intravenously, 100 per cent of that dose will be distributed in the patient (*Figure 1*). One $t_{1/2}$ later, 50 per cent will remain and, as we continue to administer one dose every $t_{1/2}$, the total drug in the patient will gradually accumulate. After maximum accumulation, 200 per cent will be distributed in the patient just after administering a dose and one $t_{1/2}$ later, just before the next dose, only 100 per cent will remain. The two-fold difference in level will continue as long as one dose is administered every $t_{1/2}$.

Examples utilizing hypothetical and commonly used drugs are given in *Table 1*.

Drugs are usually administered orally and the continuous absorption of the drug from the gastrointestinal tract (one to three hours for most drugs) will tend to act like a continuous infusion, decreasing the fluctuations in the effective drug level. The degree of

fluctuation can be further reduced by giving the same total dose in divided amounts at shorter intervals, but patients will not swallow pills more often than every few hours and usually not at all during the six to eight hours they sleep, so fluctuations in the effective dose level will certainly occur.

From *Figure 1* and *Table 1* it can be determined that:

1. With continuous administration, the amount of drug given in 1.5 of its $t_{1/2}$ is numerically equal to the approximate maximum cumulative dose, except when doses are widely spaced relative to the $t_{1/2}$.
2. The more rapid the rate of elimination, the greater will be the fluctuation between doses.
3. For practical purposes, maximum accumulation occurs in 5-6 $t_{1/2}$.
4. After maximum accumulation, the maintenance dose is the dose which equals the quantity eliminated per dosing interval.

The principles we have discussed can be examined in a patient being digitalized. Digitoxin has a $t_{1/2}$ of seven days and is eliminated at a rate of ten per cent per day. The patient could be digitalized by giving the daily maintenance dose only, but this method would require 35 to 42 days (5 to $6 \times t_{1/2}$) to digitalize the patient and would be intolerable if he is in severe congestive failure. Therefore, we give a priming dose calculated to attain the effective drug level rapidly and then continue therapy with the maintenance dose. Also note that with digitoxin, the maintenance dose is given frequently (7 doses/ $t_{1/2}$) relative to the $t_{1/2}$ in order to keep fluctuations in effective drug level as small as possible since the difference between effective and toxic drug levels is quite small for the cardiac glycosides.

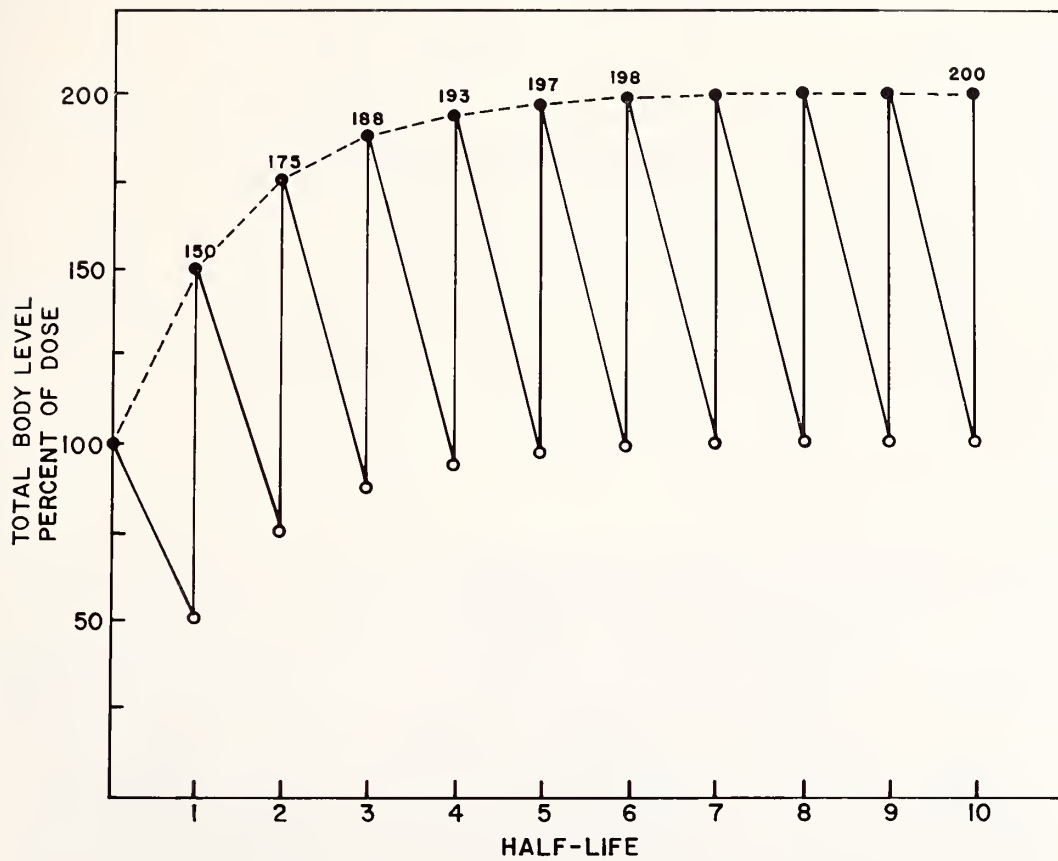


Figure 1

Digoxin has a $t_{1/2}$ of 18 to 24 hours and patients can and have been digitalized with this cardiac glycoside in a reasonable period of time by administering only the maintenance dose without a priming dose. Similarly, because of the shorter $t_{1/2}$, to mini-

mize fluctuations in the effective drug level, the 24 hour maintenance dose of digoxin is best given in two divided doses every 12 hours. Digoxin is eliminated primarily by clearance through the kidney and patients with kidney disease require a smaller dose

TABLE 1
RELATIONSHIPS BETWEEN ACCUMULATION OF A DRUG AND ITS HALF LIFE

Drug	Half-Life (Days)	Doses Per Day	Doses Per Half Life	Doses Per 1.5 Half Life	Drug Accumulation Recorded as No. of Single Doses		
					IMMEDIATELY AFTER LAST DOSE		JUST BEFORE A DOSE
					After 6 Doses	After Max. Accum.	After Max. Accum.
Hypothetical	1	1	1	1.5	1.97	2	1
Hypothetical	1	2	2	3	2.92	3.4	2.4
Hypothetical	1	4	4	6	3.7	6.3	5.3
Hypothetical . . . . .	.5	1	.5	.75	1.33	1.33	.33
Aspirin . . . . .	.25	4	1	1.5	1.97	2	1
Penicillin . . . . .	.028	6	.17	.25	1.02	1.02	.02
Phenobarbital	5	1	5	7.5	4.4	7.8	6.8
Digitoxin	7	1	7	10.5	4.8	10.6	9.6
Bromide	12	3	36	54	5.9	53	52

because the $t_{1/2}$ is increased secondary to the decreased rate of digoxin clearance.

Digitoxin has a much longer $t_{1/2}$ than digoxin and, therefore, if toxic levels do occur with the former drug, they will take much longer to decrease than toxic levels of digoxin. Also, remember that if the maintenance dose of digitoxin is increased (e.g. from 0.1 to 0.15 mg/day), it will take 35 to 42 days before maximum accumulation due to the increased dosage occurs. Although the initial increase of drug in the body may be beneficial, the continued increase

may produce toxic levels as long as six weeks after the dose is changed.

When prescribing drugs with long $t_{1/2}$ such as guanethidine, chlorpropamide, and nortriptyline, one should be especially cognizant of this accumulative effect and the long periods required to attain the maximum drug level. Although the $t_{1/2}$ for these drugs is one to two days, priming doses are not usually given because, for most of these drugs, a rapid onset of action is not necessary and is more likely to produce toxic effects.



MILLIONTH WOMAN TESTED IN AAGP CANCER PROGRAM

A million women have been tested for cancer of the cervix (neck of the womb) at the end of the first four years of a nationwide cervical cancer detection program sponsored by the American Academy of General Practice, national association of family doctors. By the end of November more than 5,000 doctors (all Academy members) in 40 states had participated in what has been described as the biggest single research project in history. Participating doctors have discovered 2,000 cases of cervical cancer since the project began early in 1965 and another 10,000 women with suspicious test findings, requiring follow-up examinations. An integral part of the office detection program is the relay of each individual test result to the Public Health Service's Cancer Control Program branch in Washington, where it is computerized for further evaluation in relation to the total sample. Shown above in the computer room of the HEW building viewing a printout of recently computerized data are (from left): Dr. Lawrence E. Leigh, Overland Park, Kans., chairman of the Academy's Committee on Cancer; Dr. Maynard I. Shapiro, Chicago, AAGP national president; Dr. William L. Ross, chief of the USPHS's Cancer Control Program, and Dr. Charles W. Pemberton, PHS representative on the AAGP-PHS project. It is significant, according to the men, that of the million women tested under the program, one third received their first examination for the disease which kills 14,000 American women each year. "It is conceivable that cervical cancer could be virtually eliminated as a cause of death in this country if every women were given semianual or at least annual examination," Dr. Leigh said.

Cancer Page

Patient History:

The patient was a 78-year-old female who presented herself to her physician complaining of a "lump" in her left labium majus. The patient had known about the mass for an indeterminate period of time and apparently sought help because of its continued growth.

Physical examination revealed a 5 cm lesion in her left labium majus which grossly appeared to be carcinoma. No lymph nodes were palpable in either groin. Following a biopsy report of invasive squamous cell carcinoma, a radical vulvectomy was performed. Nine months later, the patient returned with what appeared clinically to be metastases to the lymph nodes of her left groin and a radical groin dissection was performed. Later, recurrence was noted at the primary site.

Committee Comment:

First, recurrence most commonly occurs at the site of the primary but this always opens the possibility that the radical vulvectomy was not radical enough. Second, all vulvar carcinomas should have a bilateral superficial and deep groin dissection, regardless of whether or not nodes are palpable. Forty-three per cent of the patients with non-palpable nodes have metastatic disease in those nodes. The groin dissection must be bilateral even with apparently unilateral disease because the lymphatic drainage of the vulva is to the contralateral as well as the ipsilateral groin. If any groin nodes are positive, an extra-peritoneal pelvic lymphadenectomy should be performed, extending to the bifurcation of the common iliac artery and including the nodes of the obturator fossa. The operative mortality with this radical approach is ten per cent, but the five-year survival is 64 per cent, a salvage rate unmatched by any other approach.

Conclusion:

Inadequate initial therapy.

—The Committee for Control of Cancer

The President's Message

DEAR DOCTOR:

RURAL HEALTH CARE

In most small Kansas towns when an older physician dies or retires, a young physician does not take his place. The decreasing self reliance of small towns is not confined to the absence of a resident physician. I know of many small towns which, in years past, had a physician, a banker, a blacksmith shop and a grocery store. Now the bank is boarded up, the blacksmith shop is an empty curiosity, and the residents drive thirty minutes to the nearest supermarket or "drive-in" bank in the nearest thriving community.

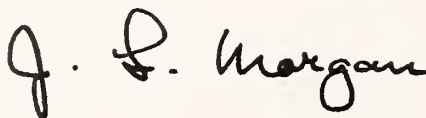
Various approaches have been made to secure physicians for small towns. Placement bureaus have not had notable success in attracting physicians to rural areas. Plans on the local level involving attractive financial offers have not generally succeeded in keeping physicians (and their wives!) in a rural environment. A current recommendation on the national level would require that all physicians entering practice either serve two years in a ghetto, or serve two years in a rural area. Informed discussants have indicated that these stipulations, coupled with other increasing federal rules restricting medical practice, would serve to further deter qualified young men from choosing a medical career.

Consider the young physician entering practice. In medical school, in his internship and in his residency programs he learned to utilize intricate laboratory tests, new x-ray procedures and to call subspecialists into consultation for help in the detailed management of complicated problems. Without question, he is a product of the finest system of medical education in the world. It is not surprising that this superbly trained physician hesitates to practice his art and skills without a nearby hospital, or a hospital with no laboratory services, no radiologist, no pathologist and no ready consulting service.

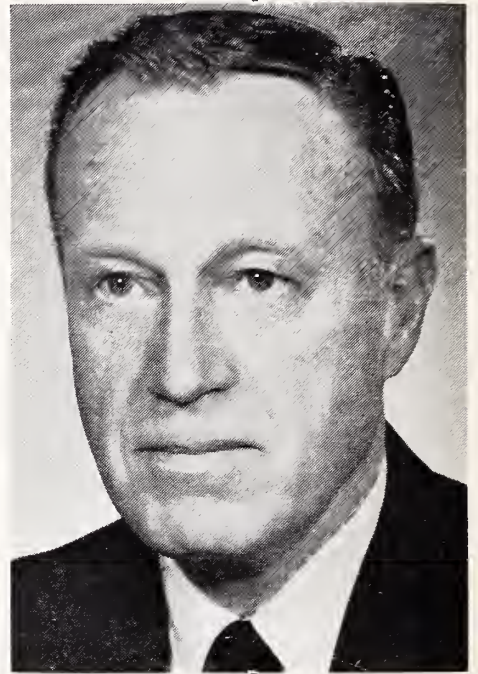
Suggestions on the national level involve rapid communications with centrally located trained ambulance teams (and even helicopter teams!), first-aid training for laymen in rural areas, and the use of "paramedical" personnel such as trained nurses or physician's assistants to render emergency care and transport seriously ill or injured patients to the nearest well-equipped treatment facility. None of the current plans envision the re-establishment of a physician's office in the small rural town.

I conclude that rural health care in the predictable future will bear little similarity to the direct resident physician care these small towns have known in the past.

Sincerely,



President





Editorial COMMENT

The American Medical Association, as part of its current reorganization, has changed the structure of the field service division. Mr. Aubrey Gates, former director, will retire shortly. The new director of the field service division is Mr. Joe Miller who, since its inception, directed AMPAC. In the reorganization the field staff of the AMA will also be the AMPAC field staff.

New districts have been created and the district in which this Society is involved will consist of Iowa, Nebraska, Kansas, Colorado, Wyoming and Utah. Another organization change is that the field representative will live in the district rather than in Chicago.

The field representative for this district is Mr. David B. Weihaupt who has been in the field service in the past. The Kansas Medical Society is fortunate to have this young man and welcomes him.

The Ohio State Medical Association gave Mr. Weihaupt a commendation for distinguished service. This is produced below as probably the best way the new field representative for Kansas could be introduced to the members of this Society.

COMMENDATION FOR DISTINGUISHED SERVICE

The Council of the Ohio State Medical Association hereby expresses, by official action, to DAVID B. WEIHAUPT, deepest appreciation for his outstanding services to and his sincere relationship with this Association and the physicians of Ohio while serving Ohio as Field Service Representative of the American Medical Association from August, 1965, to this date.

New Field Representative

The Council warmly commends Mr. Weihaupt to the states he will serve in his new assignment with the American Medical Association.

His allegiance and dedication to the principles of American Medicine reflect great credit on him and the American Medical Association.

The Council hereby directs that an official copy of this COMMENDATION be presented to the State Medical Associations Mr. Weihaupt will serve in his new assignment, and that a suitable plaque in attest of this commendation be inscribed and be presented to Mr. Weihaupt.

THEODORE L. LIGHT, M.D., *President*
Ohio State Medical Association
Columbus, Ohio

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Ray D. Baker, M.D.
1615 West 8th Street
Topeka, Kansas 66606

Phillip E. Green, M.D.
The Menninger Foundation
Topeka, Kansas 66601

Paul H. Kindling, M.D.
918 West 10th Street
Topeka, Kansas 66604

American Medical Association

Summary of Actions of the House of Delegates, 22nd Clinical Convention, December 1-4, 1968, Miami Beach, Florida

Discrimination in American Medical Association membership because of color, creed, race, religion or ethnic origin is clearly prohibited by a section added to the Association's bylaws by the House of Delegates at the 22nd Clinical Convention. A second amendment adopted in the bylaws provides a mechanism for implementing the prohibition in case of repeated violations.

In other, equally far-reaching actions, the House directed the Council on Constitution and Bylaws to prepare "appropriate Bylaw amendments so that qualified Doctors of Osteopathy may be admitted to full active membership in the American Medical Association" and adopted a Board of Trustees report providing a number of significant avenues whereby "qualified osteopaths may be assimilated into the mainstream of medicine."

Those were only two of the forward steps taken by the AMA House of Delegates during 10 hours and 47 minutes of deliberations in convention at Miami Beach.

Attendance at the House session went from a low of 91 per cent at the opening meeting (223 out of 242 delegates present) to a high of 99 per cent (240 delegates) at the Tuesday and Wednesday sessions when actions were taken.

Ninety-four items of business were brought to the attention of the House, including 22 reports from the Board of Trustees; one from the Joint Conference Committee of AMA and Blue Shield; four from the Council on Medical Service; three from the Council on Medical Education; two from the Council on Constitution and Bylaws; and 62 resolutions from state medical associations, scientific sections and individual delegates.

Of the 32 reports, 18 were adopted; three were amended and adopted; eight were accepted for information; one was amended and then accepted for information; one was approved; and one was rejected. (The House did not pass the Constitutional and bylaw amendments that would have enlarged the Board of Trustees to 16 members by giving the vice president a vote on the Board.)

Of the 62 resolutions, 12 were adopted; 19 were amended and adopted; six were combined with one or more others into substitute resolutions; three were absorbed into other adopted resolutions; six were

referred to the Board or a Council; five were rejected; six were replaced by substitute resolutions; three were replaced by substitute resolutions which were then amended; and two were withdrawn before being sent to a reference committee.

The following is a brief summary of actions taken by the House.

Discrimination

The Council on Constitution and Bylaws presented wording for the anti-discrimination amendments in response to the House's wishes expressed at the Annual Convention in June, 1968.

The over-all statement on discrimination was added as a new Section 3 of the bylaws, Chapter I:

Section 3—Discrimination in Membership

Membership in the American Medical Association or in any of its constituent associations shall not be denied or abridged on account of color, creed, race, religion or ethnic origin.

Provision for disciplinary action was provided by adding this sentence to Chapter XI, Section 11, (D) (7):

If the Council determines that the allegations (of discrimination against physician applicants for membership) are indeed true, it shall admonish, censure or, in the event of repeated violations, recommend to the House of Delegates that the state association involved be declared to be no longer a constituent member of the American Medical Association.

Osteopathy

The House adopted a Board report stating these objectives with respect to osteopaths:

To "assure the provision of the best possible health care to the American people; make available to students and graduates in osteopathy, education of the same high standards as prevail in undergraduate, graduate and continuing educational programs in medicine; provide avenues whereby qualified osteopaths may be assimilated into the mainstream of medicine."

To achieve those objectives, the AMA recommends that each school of osteopathy improve its teaching program by strengthening its faculty and improving its facilities and resources; invites schools of osteopathy and their accrediting agencies to consult with

the AMA and the Association of American Medical Colleges; suggests that accredited hospitals may accept qualified osteopaths on medical staffs; suggests that medical specialty boards may accept osteopaths for examination if they have completed AMA-approved internships and residency programs and have met other regular requirements; requests that as specialty boards declare intent to permit examination of osteopathic graduates, appropriate AMA-approved residency programs to be opened to qualified osteopathic graduates; suggests opening AMA-approved internships to qualified osteopathic graduates; recommends that determination of qualification be made at the level of the medical staff, the county medical society or the review committees and boards having appropriate jurisdiction; and suggests that AMA, state and county societies and other affected organizations "may proceed to make such constitution and bylaw changes as are necessary to implement the foregoing."

The House also "suggests that each county and state medical society may accept qualified osteopaths as active members and thereby provide for their membership in the American Medical Association" and instructed the Council on Constitution and Bylaws to prepare "appropriate Bylaw amendments so that qualified Doctors of Osteopathy may be admitted to full active membership" in the AMA.

Awards

J. Arnold Barga, M.D., of Riverside, California, was chosen to receive the AMA Distinguished Service Award, which will be presented at the 1969 annual convention.

John D. Rockefeller, III, of New York, Chairman of the Board of the Rockefeller Foundation, was selected to receive the Citation of a Layman for Distinguished Service, also to be awarded at the annual convention in July 1969.

President's Report

Dwight D. Wilbur, M.D., President, told the House that "Perhaps our greatest problem is that, in many ways, we in America have tried too hard and succeeded too well. . . . We have progressed so far in so many areas that our people are impatient with the realities of human limitation. They are eager to instantly wipe out poverty, eliminate ignorance, sweep away ill will and violence, replace jealousies and hate with universal good will. Even the specter of death itself is by some considered a temporary and stubborn spite to mankind that will be mastered as soon as new organs are developed or transplanted and new drugs are synthesized."

President Wilbur listed five areas to which he believes the medical profession should give its greatest attention:

1. Making high-quality health care available for everyone in America at as reasonable a cost as possible.

2. Putting a rein on costs by avoiding hospitalizing any patient unless absolutely necessary; reducing the length of hospital stay to the essential minimum; using extended care facilities, nursing homes and home care services more often; stimulating prepayment mechanisms on a voluntary basis; supporting the principle of income tax credits for health insurance; keeping physicians' charges on a basis of usual, customary and reasonable fees, with self-discipline and peer review; and encouraging wider use of reliable automated laboratory procedures, passing the cost benefits on to patients.

3. Developing more reasonable and more realistic expectations by the public.

4. Unifying the medical profession and maintaining constructive liaison with other groups.

5. Planning for an orderly and enhanced future. "We must," he said, "increasingly depend on the Board of Trustees to lead in planning and development for the future. . . . As an association, this is our greatest responsibility. The Board must increasingly be an informed board of strategy that looks ahead and advises the profession, the government and the public regarding health measures."

The President closed his report by saying, "We are immersed in an epoch of change. We cannot hope to emerge from it as respected leaders unless we guide the course of change. . . . Our guidance in helping change all elements of society that affect the people's health in an orderly, balanced sequence is the price of our continued esteem as a profession and an organization."

Organ Transplants

The House adopted a statement on heart transplantation which makes these five points:

1. The preservation of good medical practice demands that the evolution of therapy be orderly. "The staff of a hospital or medical center planning to initiate such a program should have: (1) adequate background in animal research so that experience is gained as to the problems, potentials and limitations of cardiac transplantation; (2) experience in immunosuppressive therapy and an adequate source of antilymphocyte globulin of known quality; (3) a protocol of clinical research adequate to follow and evaluate the course of the patient."

2. Due regard for the welfare and safety of each individual patient is paramount.

3. Heart transplantation has brought certain medical, ethical and legal questions into critical focus. "Paramount among them is the determination of death. The right of the prospective donor to the best possible medical care—a right which his po-

tential role as organ donor must not be allowed to abrogate—must remain sacred. The growing ability of medical science to maintain some form of biological function for prolonged periods adds to the difficulty of defining the point of irreversible dissolution.

"The cause of death must be evident and of an irreversible type. The fact of death must be established by adequate, current and acceptable scientific evidence in the opinion of the physicians making the determination. The determination of death in organ donors must be made by no less than two physicians not associated with the surgical team performing the transplant."

4. The potential for heart transplantation, whatever that may prove to be by subsequent clinical experience, will be "severely limited by the shortage of potential organ donors. . . . Basic research into the causes of heart disease and of hypertensive vascular disease is . . . of vital importance, since the only ultimate solution to the problem of heart disease lies in its prevention."

5. "Human heart transplantation has been accompanied from the outset by a degree of public awareness and attention almost without parallel in medicine. . . . It is imperative, therefore, that the public be made fully aware of the potentialities and limitations of heart transplantation as those are currently understood and as that understanding is modified by subsequent experience. . . . Only by preserving public confidence in the judgment of the physician, can the orderly progress of medicine be maintained."

The House also approved the Uniform Anatomical Gift Act and urged each state medical association to give it careful consideration "with a view to seeking its adoption in its state." State associations were urged to consider carefully the provisions of the legislation and to make any necessary changes to accommodate their needs. The uniform act has been approved by the American Bar Association through the Liaison Committee to the ABA and the House supported cooperative efforts by state medical associations and state bar associations to secure prompt adoption of the legislation.

Health Care Costs and Financing

Following its similar action at the 1968 annual convention, the House again accepted for information the report of the Committee on Health Care Financing pertaining to the use of federal income tax credits for the purchase of health insurance and adopted a resolution that the AMA "vigorously promote the enactment of federal legislation which would translate the concept of income tax credits for health insurance premiums into law."

The House asked the Board of Trustees to devote sufficient staff, facilities and funds to develop an

"effective program for immediate and on-going studies of health care costs" and to report the status of the program at the 1969 annual convention. The Board also was requested to expedite and expand existing programs and, "where necessary, develop new programs for the following purposes: (1) analysis of health care costs and expenditure data developed and reported by other sources; (2) definitions, reports and explanations of the several major categories of health care expenditures; and (3) dissemination of the data, findings and conclusions of such studies to constituent medical societies, news media and state and federal government authorities."

Recognizing that advertising and promotion of new Blue Shield programs providing broader benefits might be subject to misinterpretation by the public, the House resolved that "any references to 'paid-in-full' coverage clearly identify those services which are indeed covered on a 'paid-in-full' basis and also identify the circumstances under which those services must be rendered."

In two other actions, the House called on "all voluntary health insurance organizations to offer reinstatement of all contracts which were cancelled or converted because the insured individual was over age 65 and eligible for medicare"; and reaffirmed the AMA's belief that "the concept of voluntary health insurance is the most acceptable means of financing health care when applied in keeping with the principles of the American Medical Association."

Matters of Patient and Public Interest

The House adopted the Council on Medical Education's "Special Requirements for Residency Training in Family Practice" and resolved that the AMA "affirm the importance of providing appropriate recognition for family physicians through approval of a primary specialty board for family practice and that the Council on Medical Education be encouraged to continue its efforts with the American Academy of General Practice and the AMA Section on General Practice to achieve this goal."

In other actions particularly aimed at patient care and public well-being, the House:

. . . Accepted for information a report that a portion of the Third National Congress on the Socio-Economics of Health Care would be devoted to solo practice.

. . . Adopted a report on the AMA's continuing concern with obesity treatment.

. . . Adopted a report stating that the AMA has proposed to the National Center for Health Statistics a meeting among concerned groups to review a revised certificate of live birth.

. . . Endorsed in principle the use of a multi-purpose health record form in providing medical examinations for young people.

. . . Resolved that the AMA "again urge its members to play a major role against cigarette smoking" and that the AMA "take a strong stand against smoking by every means at its command."

. . . Noted reports by "experts in recognized medical centers of new therapeutic uses of 'old' drugs which may be indicated in patients currently under the care of the physician" and resolved that the AMA discuss this problem with the Commissioner of Food and Drugs in an effort to enable the practicing physician to employ such new, life-saving therapy legally when indicated.

. . . Encouraged the American Association of State Highway Officials and the Federal Highway Administration to work toward the adoption of the International System of Highway Signs which avoids the use of language in order to make the visits of foreigners to the United States "as safe and pleasant as possible."

. . . Urged constituent societies in those states where existing laws do not permit minors to consent to treatment for venereal and other communicable diseases "to seek the enactment of such legislation."

Education

The House adopted a report of the Board of Trustees offering its comments (approval or suggested amendments) on many of the recommendations of the Report of the Citizens Commission on Graduate Medical Education. However, the Board pointed out that "it is neither possible nor desirable to make final recommendations . . . at this time on some of the more controversial portions of the report. These portions deserve further careful study and deliberation by all concerned individuals, institutions and organizations."

A program for formal recognition by the AMA of physicians who participate in continuing medical education was adopted, along with a proposal to fund the recognition award.

"A physician may, upon request," the report said, "receive the recognition award at the completion of three years of graduate training in AMA-approved programs, or the equivalent in research activity or in educational programs leading to further advanced degrees in medical sciences."

Funding will include a registration fee of \$5 for each physician who wishes to participate. The fee would cover the costs of printing, handling, mailing and processing the correspondence and certificates as well as the costs of initiating and maintaining the record system. Each physician would pay the registration fee only once in each three-year period.

The House recommended that the Medical Education for National Defense program "be re-instituted at the earliest possible date; direction be the respon-

sibility of the Department of Defense; adequate financial support be provided with appropriate safeguards to assure that funds will be used solely for the purposes of the program; and that such support be allocated to the medical schools on the basis of program merit."

And the House also encouraged the creation of continuing high quality service-career physicians "through specific support of existing medical school expansion to include selected, service career-oriented students."

Allied Health Personnel

The House agreed with the Council on Health Manpower regarding the need for physician prescription and supervision of all ancillary services provided in the hospital by adopting a Board of Trustees report on the utilization of paramedical personnel. In adopting the report, the House stated that "the medical staff should concern itself with contractual agreements between various allied health professionals and the hospital only insofar as, and to the extent that, such agreements tended to remove the provision of ancillary services from the prescription and supervision of the physician."

Another Board report adopted by the House, based on findings of the Council on Health Manpower, considered the phrase "related healing arts" as used in the declaration of purpose in PL 89-749. The report stated that "it is apparent that the context in which this term is used offers assurance that the patterns of medical practice in the country will not be altered by PL 89-749." Consequently, the Council recommended "that any definition of the term 'related healing arts' should be made at the state and local level because of the important variations in practice within the country."

The House adopted the Council on Medical Education's revision of "Essentials of Approved School of Medical Technology" and its "Essentials of an Accredited School of Radiation Therapy Technology."

In regard to nurses, the House resolved that "state and county medical societies be encouraged to study the problems relating to nursing education and to seek at the local level all available sources of financing support for hospital nursing schools" and that the AMA "take appropriate action in consultation with professional nurses' associations and the American Hospital Association to encourage increasing enrollment in diploma schools."

Medicine and the Government

The House accepted for information reports of the Council on Medical Service regarding neighborhood health centers under the Office of Economic Opportunity, Public Health Service and Housing and Urban Development; and on Project Headstart.

In addition, the following resolutions were adopted by the House:

. . . That the AMA "seek to have Congress phase out federal health care programs which overlap and reduplicate Medicaid."

. . . That PL 89-749 be amended to require that "a substantial percentage" of executive boards or councils "at all levels of planning, federal, state and regional, both A and B agencies, be actively practicing private physicians, nominated by organized medicine."

. . . That county and state medical associations, through the AMA, supply when requested "the name and biographical data of physicians who are qualified, willing and able to accept appointment in government service, full or part time."

. . . That the Board of Trustees "consider sponsorship of periodic conferences or workshops on public affairs for the continuing education and benefit of medical society leaders and physicians throughout the nation."

. . . That the AMA "exert every effort to bring about the elimination of unnecessary documentation of medical services by the physician, hospital and fiscal intermediary on Medicare and Medicaid patients."

. . . That all school administrative bodies be encouraged to consult with "competent medical authorities prior to initiating and conducting programs involving any medical aspects funded under the Elementary and Secondary School Act."

. . . That "physicians and their medical societies should strive to attain the adoption of established principles which are designed to provide the people of this nation with the highest quality of medical care" and that all physicians be reminded "that as free men and women they have no obligation to accept employment and remuneration under any conditions other than those arrived at by agreement between the physician and the recipient of his service."

Mostly of Internal (AMA) Interest

State and county medical societies were urged to establish uniform membership classifications based on AMA membership categories described in the by-laws.

The Board of Trustees was asked to consider seriously recommending to the House that the 1976 clinical convention be held in Philadelphia as a part of the bicentennial celebration of the Declaration of Independence.

The House accepted for information a report that the Council on Medical Service has reconstituted its committee structure to provide for committees on Health Care Financing; Government Medical Services and Community Health Care.

A report on the AMA-ERF and a special financial

report on the Institute for Biomedical Research were adopted by the House, along with a resolution that a liaison committee of 10 members of the House "meet during the time of each convention of the House, or more often if necessary, with the President and Directors of the AMA-ERF and the Director of the Institute for Biomedical Research for review of current programs of the AMA-ERF and consideration of suggestions for broadening the base of support for the AMA-ERF, and to report the results of such meetings to the House at each convention."

Dr. George W. Beadle, former President of the University of Chicago, was introduced to the House at the opening session, which took place on the day Dr. Beadle assumed directorship of the Institute.

A progress report on the management survey of the AMA which is now under way was adopted by the House. Also adopted was a resolution that "the Board of Trustees be requested to continue to observe closely the activities of the Division of Public Affairs since this division is newly formed with newly defined functions and activities; and . . . that the House of Delegates receive in advance a comprehensive report on the management survey and its implementation from the Board of Trustees prior to the next Annual Meeting."

The House recommended to the Board that "the office of Executive Vice President be filled, if possible, by a Doctor of Medicine who is an active member of the American Medical Association at the time of his appointment and who possesses the necessary managerial qualifications."

The House resolved that "the Executive Vice President prepare a report for the sessions of the House of Delegates as frequently as necessary but at least for each annual meeting and that the report be submitted in written form and referred to the appropriate Reference Committee" and that he be prepared "to present a brief oral summary of his report on request of the House."

Other resolutions adopted included these:

. . . That the Scientific Sections maintain responsible and responsive relations with all appropriate specialty societies.

. . . That the Board continue and expedite "its present activities to study and search for solutions to problems of medical professional liability."

. . . That the AMA, through its representatives on the JCAH, "take action to assure that accreditation be granted only to those institutions where the rights of the medical staff are not abrogated."

. . . That every county and state medical society initiate and maintain a "continuing program of active liaison with students at medical schools within their jurisdictions, preferably through active functioning chapters of SAMA."

. . . That the House go on record "favoring ex-

ploration of" establishing more uniform reciprocity arrangements among all states with respect to physician licensing.

. . . That the AMA adopt the following definitions and distribute them to all state medical associations for their individual consideration and guidance:

"'Usual' is defined as the 'usual' fee which is charged for a given service by an individual physician in his personal practice (i.e., his own usual fee); 'Customary' is defined as that range of usual fees charged by physicians of similar training and experience for the same service within a given specific limited geographic or socio-economic area; 'Reasonable' is defined as a fee which meets the above two criteria, or, in the opinion of the responsible local medical association's review committee, is justifiable in the special circumstances of the particular case in question."

The House also resolved that "whenever these terms are used in contracts or laws, that they be specifically defined in those documents."

Miscellaneous Actions or Reports

M. Louise C. Gloeckner, M.D., delegate from Pennsylvania and the only woman in the House of Delegates, received a standing ovation and a bouquet of roses from the House at its opening session. She ended her service in the House with this meeting.

Aubrey Gates, executive assistant in the office of the Executive Vice President and former director of the Field Service Division, was extended "recognition and commendation" by the House in advance of his retirement in May, 1969.

A report on the Woman's Auxiliary was given to the House by Mrs. C. C. Long, President; one on AMPAC was presented by Blair J. Henningsgaard, M.D., AMPAC President; and Alvin J. Ingram, M.D., Secretary of the Board of Trustees, reviewed the Association's Annual Report from the delegate's handbook.

Remarks of the Former Executive Vice President

Following the adoption of three resolutions commending F. J. L. Blasingame, M.D., for his services to the AMA as delegate, trustee and Executive Vice

President, Dr. Blasingame addressed the House briefly at its opening session.

He called for a constitutional convention to re-evaluate the working of the AMA to equip it better for the "Herculean tasks" its faces, adding that the existing committee system is inadequate for the work. "This is a time for action, clarification and soul-searching for the AMA," he said, adding that the Association "can't afford to be concerned with internal bickering."

Dr. Blasingame said several questions should be asked by the AMA of itself, including these: How can the organization discharge its primary obligation as advocate of physician responsibility? Is the organizational structure adequate to meet the obligations of modern science? How can priorities be established to help both the physician and the patient? How can a dichotomy be avoided between the scientific and political aspects of medicine?

By a vote of the House, Dr. Blasingame's complete remarks will be published in the Proceedings of this Clinical Convention.

JOHN C. MITCHELL, M.D.

LUCIAN R. PYLE, M.D.

Delegates from Kansas

Student Thesis

(Continued from page 18)

a more vigorous attempt should be made to rule out specific organic or psychiatric disease.

Summary

It appears that enuresis has been recognized nearly as long as man has recorded his civilized history. Its history has been long and colorful and will probably continue thusly for some time before the problem is resolved. Basically enuresis is a symptom, not a disease, and as such it is only with greater understanding of the underlying pathology that we can hope to control it consistently.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.





Personalities—IN KANSAS MEDICINE

Lloyd W. Reynolds, Hays, was installed as president of the Kansas Chapter of the American College of Surgeons at the annual meeting of the chapter held in Wichita recently. He succeeds **Donald Selzer** of Topeka. The new president-elect is **John Shellito**, Wichita. **Jack Graves**, also of Wichita, is secretary-treasurer.

The use and abuse of drugs was the subject of a panel discussion at the Shawnee County Fall Health Conference held in Topeka in November. **W. Wike Scamman**, **Victor E. Reinking** and **Robert Parman**, all of Topeka, were members of the panel.

"Abortion Laws and Oral Contraceptives" was the subject of a talk given by **Robert E. Sullivan**, Leavenworth, at a meeting of the Centennial Chapter of the American Business Women's Association held in Leavenworth in November.

Tom A. Montgomery, Sabetha, was elected chairman of the Kanza Mental Health and Guidance Center governing board at the annual meeting held in October. **DeWitt S. Lowe**, Hiawatha, and **Emerson Yoder**, Denton, are members of the governing board.

The department of technical journalism at Kansas State University hosted a statewide conference for mental health information personnel in November. Among the speakers at the conference were **Robert A. Haines**, director of the Kansas Division of Institutional Management, and **Howard V. Williams**, director of Kansas Community Mental Health Services.

Dr. and Mrs. Donald A. Bitzer, Washington, at-

tended a medical convention in Pittsburgh, Pennsylvania, in November.

Donald C. Greaves, professor and chairman of the department of psychiatry at the University of Kansas Medical Center, has accepted a temporary appointment as special assistant to the director of the National Institute of Mental Health in Chevy Chase, Maryland. He assumed his new position the first of January.

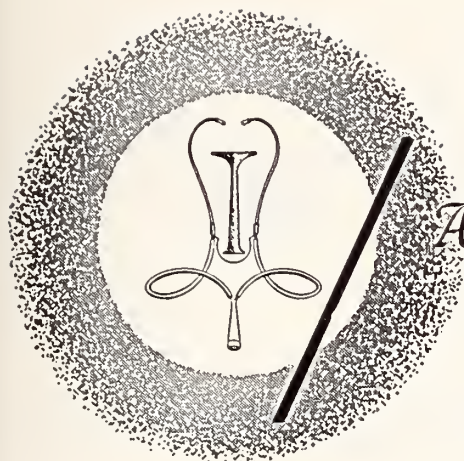
A plaque for excellence as a director was awarded to **Vincent L. Scott** of Wichita by the National Cystic Fibrosis Research Foundation. The plaque was presented by the Sunflower Chapter of the Foundation at its annual meeting in October. The feature speaker for the meeting was **Rosemary Harvey**, director of preventive medicine of the Sedgwick County Health Department, who spoke on the subject "Cystic Fibrosis in Kansas."

The life story of the American Cancer Society was the subject of an address given by **A. V. Mueller** of Topeka at a November meeting of the Topeka Kiwanis Club.

William T. Sirridge, Kansas City, was recently installed as president of the Greater Kansas City Society of Internists. **Robert H. Kurth**, Prairie Village, is the new secretary of the organization.

C. E. Sherwood, Jr. has been elected president of the board of directors of the Topeka Blood Bank, Inc. Other newly elected officers include **Donald Selzer**, Vice President, and **Robert O'Neil**, Secretary. **Theodore E. Young**, **Dean Peterson**, **Harry**

(Continued on page 47)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

FEBRUARY

- Feb. 3-5 American College of Surgeons sectional meeting, Sheraton-Fontenelle Hotel, Omaha. Contact: American College of Surgeons, 55 E. Erie St., Chicago 60611.
- Feb. 8-13 International Academy of Proctology annual congress and teaching seminar, Hollywood Beach Hotel, Hollywood, Florida. Contact: International Academy of Proctology, 147-41 Sanford Ave., Flushing, New York 11355.

MARCH

- Mar. 13-15 *Current Problems in Electroencephalography: Advances Toward Their Solution*, course sponsored by the American Electroencephalographic Society and Baylor University College of Medicine, Houston. Contact: Peter Kellaway, M.D., Baylor University College of Medicine, Houston, Texas 77025.
- Mar. 21-22 *21st Annual Midwest Cancer Conference, Broadview Hotel, Wichita.*

POSTGRADUATE EDUCATION

University of Kansas Medical Center:

- Jan. 29 *The Handicapped Child (Great Bend)*
- Feb. 10-11 *Cardiovascular Pharmacology and Therapeutics*
- Mar. 10-12 *Pediatrics*
- Mar. 17-19 *Otorhinolaryngology*
- Mar. 24-26 *Surgery*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

- Feb. 3-7 *High Risk Infant Care (Limited)*
- Feb. 17-20 *Surgery of the Hand*
- Mar. 10-12 *Diagnostic Ultrasound*

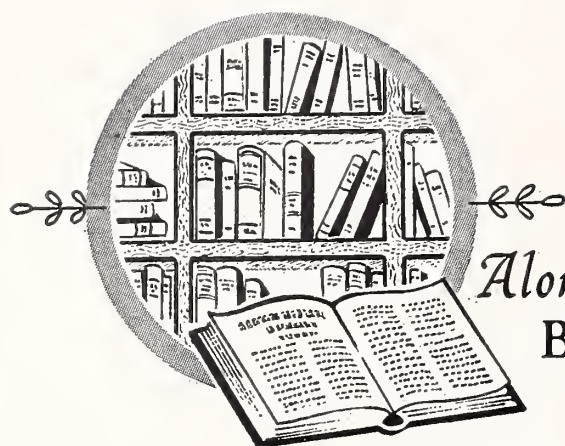
For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

- Feb. 10-11 *Common Problems and Management of the Newborn*
- Feb. 17-19 *Closed Chest Cardiac Resuscitation*
- Feb. 24-25 *Aging and Atherosclerosis*
- Mar. 5-6 *Advances in Hematology*
- Mar. 13-15 *Practical Management of Poisoning*

For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

- Feb. 21-22 *Postgraduate Continuation Course in Gastroenterology*, co-sponsored by the Institute of Gastroenterology, Good Samaritan Hospital and V. A. Hospital, Phoenix, Arizona. The course will be held at the Del Webb TowneHouse. For further information and registration forms contact: David C. H. Sun, M.D., Good Samaritan Hospital, Phoenix 85002.



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Alford, Harold J. Continuing education in action; residential centers for lifelong learning. New York, Wiley, 1968.
- American Academy of General Practice. Committee on Medical Economics. Organization and management of family practice. Kansas City, Mo., 1968.
- Bartalos, Mihaly, ed. Genetics in medical practice. Philadelphia, Toronto, J. B. Lippincott, 1968.
- Bates, Richard C. The fine art of understanding patients. Oradell, N. J., Medical Economics Book Division, Inc., 1968.
- Bottomley, Harold W. Allergy: its treatment and care; a guide for allergic children. New York, Funk & Wagnalls, 1968.
- Chambers, Francis T. The drinker's addiction; its nature and practical treatment. Springfield, Ill., Charles C Thomas, 1968.
- Cheek, David B. Clinical hypnotherapy. New York, Grune and Stratton, 1968.
- Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research, London. Boston, Little, Brown and Company, 1968.
- Clarke, Edwin. The human brain and spinal cord. Berkeley, University of California Press, 1968.
- Despert, Juliette Louise. Schizophrenia in children. New York, R. Brunner, 1968.
- Deutch, Ronald M. The keys to feminine response in marriage. New York, Random House, 1968.
- Eagles, Eldon Lewis. Human communication: the public health aspects of hearing, language, and speech disorders. Washington, 1968.
- Education for Family Practice Seminar, Columbus, Ohio, 1968. Education for family practice. Columbus, Ohio, Ohio Academy of General Practice, 1968.
- Enlow, Donald H. The human face; an account of the postnatal growth and development of the craniofacial skeleton. New York, Hoeber, 1968.
- French, Ruth M. The dynamics of health care. New York, The Blakiston Division, McGraw-Hill, 1968.
- Grier, William H. Black rage. New York, Basic Books, 1968.
- Hazard, John Wharton, 1912—Choosing tomorrow's growth stocks today. Garden City, N. Y., Doubleday, 1968.
- Helfer, Ray E. ed. The battered child. Chicago, University of Chicago Press, 1968.
- Hirsch, Monroe J. The optometric profession. Philadelphia, Chilton Book Co., 1968.
- Johnson, Warren Russell, 1921—Human sex and sex education; perspectives and problems. Philadelphia, Lea and Febiger, 1968.
- Kansas Legislative Council. A plan for the development of health resources, state of Kansas. Topeka, 1968.
- Keiser, Lester, 1922—The traumatic neurosis. Philadelphia, J. B. Lippincott, 1968.
- Larsen, Otto N. Violence and the mass media. New York, Harper & Row, 1968.
- Lubove, Roy. The struggle for social security, 1900-1935. Cambridge, Harvard University Press, 1968.
- Molander, David W. Hodgkin's disease. Springfield, Ill., Charles C Thomas, 1968.
- National Conference on Social Welfare. Social welfare and urban problems. Columbia University Press, 1968.
- Packard, Vance. The sexual wilderness; the contemporary upheaval in male-female relationship. New York, David McKay Co., 1968.
- Parish, H. J. Victory with vaccines; the story of immunization. Edinburgh, Livingstone, 1968.
- Rycroft, Charles. Imagination and reality; psychoanalytical essays, 1951-1961. New York, International Universities Press, Inc., 1968.
- Schmidt, Richard Penrose. Epilepsy. Philadelphia, Davis, 1968.
- Schwarz, Richard H. Septic abortion, with a chapter

(Continued on page 47)



Book REVIEWS

THE OFFICE ASSISTANT IN MEDICAL PRACTICE, by Portia M. Frederick and Mary E. Kinn (3rd edition). W. B. Saunders Company, Philadelphia. 432 pages, illustrated.

This book is designed for the girl who wishes to become a medical office assistant as well as for the girl already employed as a medical office aide. It is written so that even the inexperienced aide can understand some of the most complicated office procedures. It ranges from the duties of the receptionist, secretary, bookkeeper, technician, and the clinical assistant, each duty clearly explained and illustrated. A chapter entitled "Medical Ethics" followed by the chapter "Medicine and the Law" are most important in all areas of the office assistant's duties.

Routine duties, such as the handling of telephone calls, scheduling appointments, making bank deposits, sorting the mail and filing are frequently taken for granted and a quick review of the chapters regarding these duties is very rewarding. As in all physicians' offices, the collections, insurance and medicare forms are pertinent topics and we are always open to suggestions. I found myself referring frequently to this book for possible methods to improve my work in these departments.

The last part of this book deals with the clinical duties in a doctor's office. Again, the very clear illustrations of the anatomy, instruments, preparation and positioning of the patients, and procedures are well defined and easily understood. For the assistant who is trained in the doctor's office this book clearly explains the correct care and use of the instruments and supplies used in office surgery and daily office routine.

The authors of this edition were counseled by the American Medical Association, the American Association of Medical Assistants, and many others in the preparation of this book. As you read the book, you will note that there is some repetition and in some instances the authors move from one topic to another

while still in the same chapter. Even though the book has not been approved by the AAMA or its certification board, it is a good book to review frequently.

In conclusion, this book is easily understood and even though at first you feel you know all that is in it, you will find yourself referring back to certain chapters. It would be an excellent book for any office to have to help the new employee learn the simple tasks that take longer to explain than to do, and to refresh her memory in those she would not use often.—*F.A.B.*

ANESTHESIA FOR INFANTS AND CHILDREN, by Robert M. Smith (3rd edition). C. V. Mosby Company, St. Louis, 1968. 530 pages, illustrated. \$17.50.

This is another edition of an excellent treatise on this specialty within a specialty. The fact that a third edition has been written and published in less than ten years is not an indication of the inadequacy of the previous editions but a clear suggestion of the rapidity with which changes are being made. Unfortunately, as with many great advances, the knowledge this book presents may easily be outdated almost before it has been published.

Again, Dr. Smith presents with copious pictures and well chosen words not only his techniques but, more important, his basic philosophy which guide his approach to handling children and parents. I am very glad to see his inclusion of management of problems that the anesthesia people are frequently called upon to help with even though they are not strictly the administration of anesthesia—I am referring to such things as respiratory distress syndrome, status asthmaticus, tetanus, etc.

I'm sure this book could be reduced somewhat but any author is forced to include a lot of extras as a matter of "completeness." His technique for attach-

(Continued on page 47)

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Disease, Prevention and Control—Division of Vital Statistics—
Kansas Morbidity Incidence
Summary of Cases Reported in October 1968 and 1967

<i>Diseases</i>	<i>October</i>			<i>January-October Inclusive</i>		
	<i>1968</i>	<i>1967</i>	<i>5-Year Median 1964-1968</i>	<i>1968</i>	<i>1967</i>	<i>5-Year Median 1964-1968</i>
Amebiasis	—	2	1	11	14	12
Aseptic meningitis	—	—	—	6	7	7
Brucellosis	—	—	—	2	—	3
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	5	6	6	13	20	39
Encephalitis, post-infect.	—	—	*	9	2	*
Gonorrhea	493	364	293	3,785	3,332	2,672
Hepatitis, infectious	39	23	25	340	180	340
Measles (Rubeola)	1	*	*	9	*	*
Meningococcal meningitis	2	4	1	26	11	13
Mumps	8	*	*	713	*	*
Pertussis	—	7	—	4	14	14
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	1	1	3	3	3
Rubella (German Measles)	1	*	*	119	*	*
Salmonellosis	17	13	34	251	182	251
Scarlet fever	3	4	4	31	61	71
Shigellosis	8	7	8	81	47	81
Streptococcal infections	81	262	132	1,856	2,423	1,911
Syphilis	153	154	125	1,113	1,046	1,044
Tinea capitis	1	4	4	43	48	48
Tuberculosis	14	21	21	188	195	217
Tularemia	—	—	—	5	11	4
Typhoid fever	—	1	—	2	2	2

* Statistics not available.

REVISION OF RECOMMENDATION FOR
MUMPS VACCINE

The Public Health Service Advisory Committee on Immunization Practices recently recommended a revision for the use of attenuated mumps virus vaccine.

Since the introduction of live mumps vaccine approximately one year ago, more than one million persons have been immunized without report of significant side reactions clearly attributable to the vaccination.

This revision states in part "Since the Committee's initial statement on live, attenuated mumps vaccine in 1967, further experience with the vaccine has been accumulated. In view of evidence showing continued vaccine efficacy and safety, the committee has modified its recommendation for limited vaccination of young children and now suggests that consideration

be given to immunizing all susceptible children over one year of age."

INFLUENZA NOTES

Recent developments have indicated that a monovalent influenza vaccine A2/AICHI/2/68 (Hong Kong Varient) may be commercially available (in limited supply) early in 1969. Although the effectiveness of this new vaccine can only be substantiated with certainty by field use, a single dose can be expected to afford significant protection, judging from past use of potent monovalent influenza vaccines. If boosters are indicated, after field trials, further recommendations will be made.

When the vaccine becomes available, it is important that it be administered before naturally-acquired influenza occurs in the immediate geographic area.

At least a two-week interval exists between vaccination and maximal antibody response.

On December 5, 1968, the Kansas State Department of Health Laboratory documented a significant rise in titer for Type A influenza from serological specimens from a Western Kansas patient. The state of Colorado has recently documented outbreaks of A2/Hong Kong/68 influenza or of influenza-like illness from three military installations which had an attack rate of 60 to 70 per cent among their personnel.

NATIONAL STUDY TO BE CONDUCTED

At the present time there is no specific serological test for congenital syphilis in the newborn which differentiates between passive transfer of antibody and active infection.

A report from the Venereal Disease Research Laboratory of the National Communicable Disease Center indicates preliminary results with the IgM FTA-ABS test shows excellent promise. Before this test can be fully evaluated and standardized, large numbers of tests need to be evaluated.

Physicians and clinical laboratories in Kansas will be contacted by representatives of the Kansas State Department of Health and encouraged to participate in this important study.

Book Reviews

(Continued from page 45)

ing connectors is excellent but I would like to know what kind of adhesives he used to make sure these do not come apart at some critical time.—*W.O.M.*

STRABISMUS OF CHILDHOOD, by Herbert M. Katzin and Geraldine Wilson. C. V. Mosby Company, St. Louis, 1968. 84 pages, illustrated. \$3.95.

Strabismus in Childhood is a soft cover short book of 81 pages, written primarily for parents. It discusses the cause and affect of strabismus as well as the diagnosis and treatment, including orthoptics and surgery. The wording is for the layman and the various problems associated with strabismus are very clearly described in very understandable language. There is enough detail so that any medical students and physicians in general fields, would enjoy and benefit from this little book.—*B.J.A.*

Personalities

(Continued from page 42)

G. Kroll, and W. Wike Scamman are members of the board.

The newly formed North Central Voluntary Health Planning Council has elected John C. Mitchell of Salina chairman of the council.

John A. Lynch, Topeka, has been appointed medical adviser to the Shawnee County branch of the Arthritis Foundation.

Bookshelf

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- on pathology of septic abortion. Philadelphia, J. B. Lippincott, 1968.
- Scott, John Paul, 1909—Early experience and the organization of behavior. Belmont, Calif., Brooks/Cole, 1968.
- Smith, Anthony, 1926—The body. New York, Walker, 1968.
- Thomson, William Archibald Robson, editor. Sex and its problems. Edinburgh, Livingstone, 1968.
- Top, Franklin Henry, 1903—Communicable and infectious diseases: diagnosis, prevention, treatment. St. Louis, C. V. Mosby, 1968.
- Torrey, E. Fuller, ed. Ethical issues in medicine; the role of the physicians in today's society. Boston, Little, Brown and Company, 1968.
- Trummer, Max J. Lung transplantation. Springfield, Ill., Charles C Thomas, 1968.

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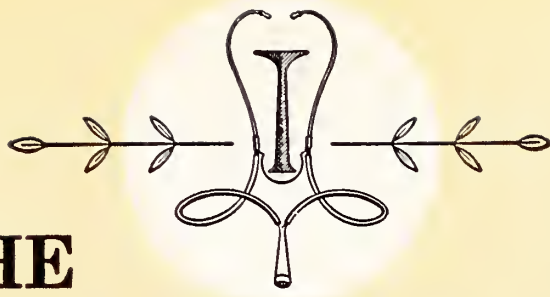
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FEBRUARY
1969

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The JOURNAL of the KANSAS MEDICAL SOCIETY

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uterine muscle of the guinea pig.)



Hypoglycemia—Tolbutamide Induced

Prolonged Tolbutamide Induced Hypoglycemia in the Postoperative Patient

CURTIS C. DREVETS, M.D., F.A.C.P.,* *Wichita*

INSULIN INDUCED HYPOGLYCEMIA in the diabetic patient is readily recognized in most instances. Hypoglycemia induced by sulfonylurea compounds is more difficult to recognize and may easily be mistaken for a cerebral vascular accident. Such an error in recognition may threaten the patient's life or seriously harm him. Three of the more common reasons for not correctly diagnosing this type of hypoglycemia are (1) less awareness of this hazard, (2) variable time of onset of the hypoglycemia as compared to that due to insulin, and (3) the progression of hypoglycemic reactions to coma, without the usual autonomic signs.¹ Several case reports²⁻¹⁰ have called attention to the characteristic clinical findings. We observed a patient presenting with classical sulfonylurea-induced hypoglycemia that persisted 19 days. This is much longer than previously reported occurrences.

Case Report

The patient was a 78-year-old woman who was admitted to Wesley Medical Center on January 11, 1966, complaining of right upper abdominal pain of seven hours' duration. These pains had occurred intermittently since September 1965. Diabetes mel-

litus was discovered in 1952, but she had not consistently followed any diet or treatment program. In July 1964, she had a cholecystectomy, choledocholithotomy, and removal of a huge ovarian cyst. The liver biopsy revealed mild hepatic damage. She was dismissed in July 1964 on tolbutamide, 1.0 gram daily,

This report illustrates a hazard of oral sulfonylurea therapy with a severe and protracted hypoglycemia presenting as a cerebral vascular accident. The hypoglycemia lasted 19 days, much longer than commonly reported. This diagnosis should be considered in patients on oral hypoglycemic agents who present a stroke-like clinical picture. Observation and therapy must be prolonged. The older postoperative patient seems to be a susceptible person for this occurrence. A defect in the patient's compensatory mechanisms may be a part of the problem.

and a diabetic diet. The admission examination in January 1966 revealed an obese lady in much abdominal pain with right upper abdominal guarding but no

* From the Department of Medicine, The Wichita Clinic. Presented at the meeting of the Kansas Chapter, American College of Physicians, held in Topeka on February 23, 1968.

rigidity, masses or jaundice. Significant admission laboratory studies were as follows: the white blood count was 15,700 with 29 per cent bands and 66 per cent segmented neutrophils; the urine had a trace of proteinuria and 3+ glucosuria; a non-fasting blood glucose was 191 mgm per cent (Somogyi-Nelson method); lactic dehydrogenase was 1160 Cabaud-Wroblewski units (normal to 350 units); serum glutamic pyruvic transaminase was 90 Reitman-Frenkl units; total bilirubin was 3.6 mg per cent with a direct fraction of 2.9 mg per cent; the alkaline phosphatase was 35.4 King-Armstrong units; the serum amylase was 330 Somogyi units; the urine amylase 162 Somogyi units per hour; a blood urea nitrogen was 22 mg per cent. X-rays showed the chest, colon, and stomach to be normal, but the common bile duct was not visualized by intravenous cholangiography.

The patient had a choledocholithotomy on January 18, with removal of one stone. Her diabetes was managed before and after surgery by adding regular insulin to intravenous fluids. She progressed well after surgery, so that by January 24 she was eating, and tolbutamide, 0.5 grams twice each day, was resumed.

On February 1, the patient refused breakfast and complained of a headache about 7:30 a.m. Tolbutamide was not given that morning. By 9:00 a.m., she was unable to speak normally. At 10:30 a.m., she was stuporous and unable to talk or swallow. Her vital signs were normal; her skin was dry and the neck was supple. She had flaccid extremities but no pathological reflexes. A blood glucose was drawn immediately and about 2:00 p.m. a lumbar puncture was done. An intravenous infusion of 5 per cent dextrose was started. Later that afternoon, we were notified her blood glucose was 41 mg per cent and the cerebral spinal fluid glucose was 6 mg per cent. At this point (5:00 p.m.), with a blood glucose of 54 mg per cent, she was given an additional 25 grams of glucose intravenously. She was awake, alert, and apparently back to her normal mental and physical status by 8:00 p.m. that evening. The 5 per cent dextrose infusion was continued. On February 2, a morning blood glucose was 68 mg per cent and since she was eating well, the glucose infusion was discontinued in mid-afternoon. On the morning of February 3, her glucose was 20 mg per cent, though she appeared perfectly normal.

Although she was given extra sugar in juices every four hours and a regular diet, her morning blood glucose levels persisted in the hypoglycemic range for 19 days (Figure 1). During this time she had no further signs or symptoms of hypoglycemia. Glucose and glucagon tolerance tests are shown in Figure 2. A celiac angiogram showed no evidence of a pancreatic tumor. During this period, the alkaline

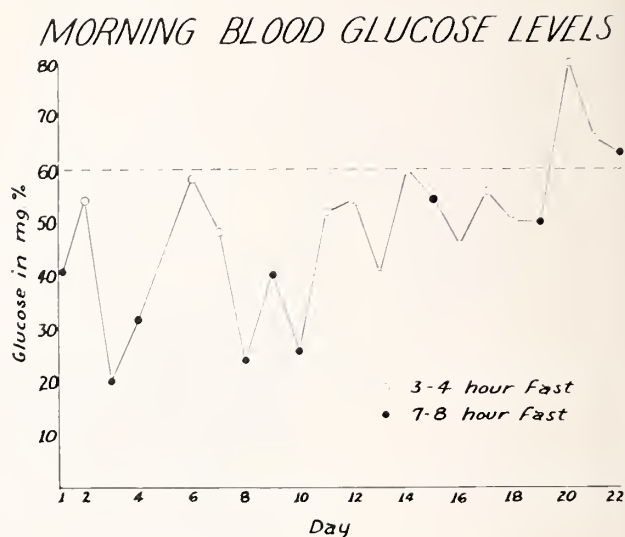


Figure 1

phosphatase continued abnormal (20.8 to 22.8 King-Armstrong units); the creatinine clearance was 24 ml/minute and the blood urea nitrogen was 11 mg per cent. Blood samples drawn on the third and twelfth days had no detectable tolbutamide. She was dismissed feeling well on February 26.

Six weeks later, she returned to the hospital for the purpose of determining the tolbutamide half-life. The serial blood glucose levels after 0.5 g tolbutamide intravenously are shown in Figure 3. The tolbu-

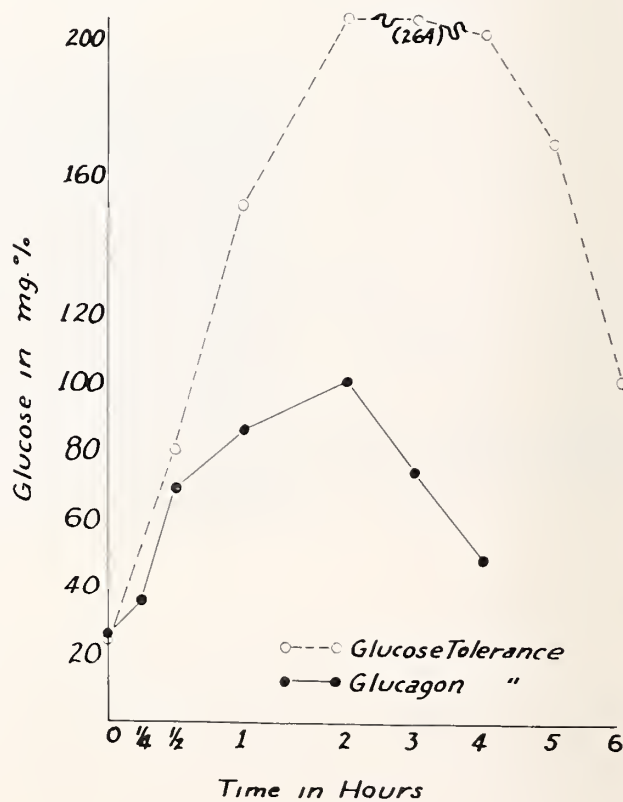


Figure 2

tamide half-life was normal (5.7 hours). She was dismissed on a diabetic diet and tolbutamide, 0.5 g daily, which she has taken to the present without any further problems.

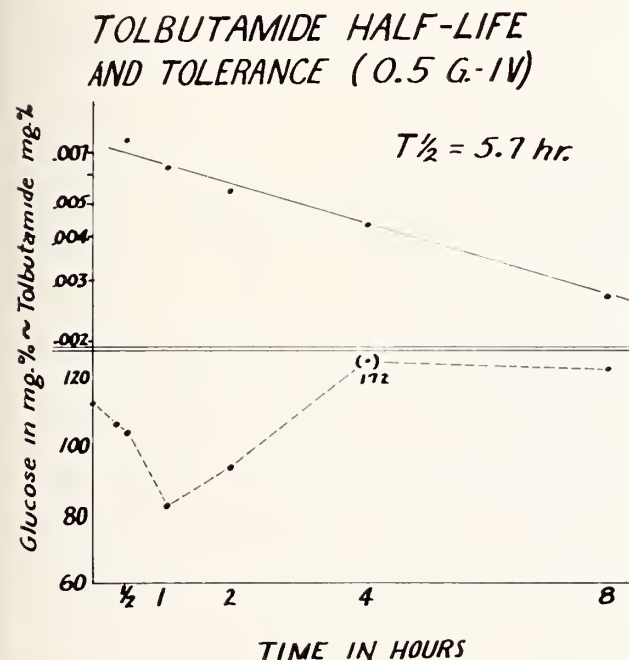


Figure 3

Discussion

Hypoglycemia has been reported in patients taking chlorpropamide,⁷ tolbutamide,²⁻⁶ acetohexamide,^{8, 9} and more recently tolazamide.¹⁰ Rull and Lenhoff¹⁰ (1967) collected 48 case reports from the world literature of sulfonylurea-induced hypoglycemia. This has followed therapy with these medications in diabetic patients and in persons without diabetes. It has been described occurring after one dose and after several months of therapy with the hypoglycemic agent. The patient reported here presented with the characteristic manifestations resembling a cerebrovascular accident, especially that involving the brain stem. There is a characteristic absence of adrenergic symptoms that are usually seen in insulin-induced hypoglycemia. This latter aspect is usually thought to be caused by the slow fall of the blood glucose level, the greater likelihood of autonomic neuropathy involving connection with the adrenal medulla, and generally these patients are of older age. The hypoglycemic state due to sulfonylurea is also much more protracted, requiring prolonged intravenous glucose or careful attention to frequent oral feedings. The average duration in 18 reported cases is 70 hours. Our patient had subnormal morning glucose levels for 19 days. The level of hypoglycemia characteristically fluctuates during this period with blood glucose levels lower than the initial level, yet with an

alert asymptomatic patient. This patient's blood glucose was 41 mg per cent when first found with a stroke-like picture, but on later days she had several blood glucose levels in the 20-30 mg per cent range without any symptoms or pathological neurological findings.

Numerous mechanisms have been found or suggested for sulfonylurea-induced hypoglycemia including (1) a delay in hepatic carboxylation to its supposed inactive form;² (2) failure to excrete this metabolite because of renal disease;¹¹ (3) abnormalities in sulfonylurea transport in plasma; (4) potentiation by other agents as alcohol, leucine, monoamine oxidase inhibitors, phenylbutazone, probenacid, propoxyphene,¹² propranolol,¹³ salicylates, and sulfonamides;^{1, 5} (5) failure of hepatic compensatory glucose output mechanisms.¹ Since this patient subsequently was found to have a normal tolbutamide half-life and none in the blood on the third and twelfth days, I presume her metabolism and excretion of tolbutamide was normal, in spite of abnormal hepatic and renal function. We also can exclude other agents known to be capable of potentiating hypoglycemic agents. An insulin producing pancreatic neoplasm was also excluded.

A study of other reported patients reveals that a number of episodes occurred after a surgical procedure or some traumatic incident. This patient also became hypoglycemic 14 days after surgery, even though she had been on insulin for six days and was eating well at that time. Tolbutamide undoubtedly induced the hypoglycemic state, but if she metabolized and excreted the tolbutamide reasonably normally, there must have been some defect in her ability to convert glycogen to glucose. It is also possible diabetic autonomic neuropathy prevented the normal adrenergic response to hypoglycemia. Although she may have been depleted in glycogen stores, the test dose of glucagon was able to call forth a normal response. It is regrettable that neither we, nor other investigators have checked these patients' glucose response to epinephrine infusions. While I am unable to exactly specify why this patient had such a protracted hypoglycemia, it seems that there must be some connection with her being in the postsurgical status and an inability to respond normally to hypoglycemia by either an adrenergic response or by ready conversion of glycogen stores to glucose.

ACKNOWLEDGMENTS: The author is deeply grateful to Thomas J. Vecchio, M.D., Manager, Medical Development, The Upjohn Company, Kalamazoo, Michigan, for obtaining the tolbutamide levels and half-life, and for his comments.

The author also wishes to acknowledge the helpful comments of Daniel B. Stone, M.B., M.D., Department of Internal Medicine, University Hospitals, Iowa City.

(Continued on page 54)

Meningeal Epistaxis

Subarachnoid Hemorrhage Due to Arterial Hypertension

PEDRO A. IGLESIAS, M.D.,* *Topeka*

IN 1906, VAQUEZ AND ESMEIN, in Paris, France, indicated the possibility of small subarachnoid hemorrhages in the course of arterial hypertension which they named "meningeal epistaxis." The authors pointed out two principal facts:

1. The clinical picture differs from that of subarachnoid hemorrhages in that there are no signs of meningeal irritation, e.g. no Kernig, no neck rigidity.
2. Spinal puncture confirms the diagnosis suspected clinically and is also therapeutic.

We have had the opportunity recently at the Veterans Administration Hospital of Topeka to study a case which we consider interesting to relate in view of the infrequency of this syndrome and the unfamiliarity of American physicians with its description: A 48-year-old male patient was transferred to the medical service three days after having been admitted to the hospital for psychiatric observation. Two days before admission he was said to have been intoxicated and confused, and to have sustained an injury to his head. This confusion had begun acutely. Because of confusion and disorientation a reliable history was not obtainable from the patient. He did not know why he was at the hospital and had no complaints other than saying he had had hypertension for 10-15 years. He denied any alcoholic problem, but another source indicated heavy drinking since teen-age. There was no previous history of psychiatric hospitalization.

He was obese, slightly dyspneic and cyanotic; blood pressure 230/145; pulse 80 per minute with occasional extrasystoles. A contusion overlay the right occipital area; there was no recent scar or laceration. His mental condition was clouded. He was confused and disoriented, with evident intellectual impairment, remote and recent memory loss with confabulation. Unsteady station and gait were noted, although Romberg's sign was negative; there was coarse tremor of the hands; tendon reflexes were hyperactive and bilateral Babinski sign was present.

Two days after admission the clinical findings were practically the same. The Babinski was positive only on the right side and an equivocal dorsiflexion re-

sponse obtained on the left. The vibratory sense was present at both ankles. The patient was unable to perform reliably other sensory testing at this time. There was pain on passive flexion of the cervical

A 48-year-old male, alcoholic and hypertensive, after heavy drinking, developed an acute episode of severe headache, confusion and disorientation which was at the beginning misinterpreted and considered related to an acute brain syndrome associated either with trauma or alcoholism. Spinal puncture confirmed the diagnosis of meningeal epistaxis suspected a few days later. The patient developed a temporary Korsakoff-like syndrome during the six to seven week recovery period.

spine, thought at the time to be a sign of meningeal irritation consequent to head injury.

X-rays of the skull and cervical spine showed traumatic deformities involving the left side of C 2, 3 and adjacent apophyseal articulations, and a long linear fracture extending through the occipital area from right of the midline superiorly to near the left margin of the foramen magnum, without bone depression or adjacent changes. The pineal gland was not identified.

The waking electroencephalogram was essentially normal, hyperventilation and photic stimulation yielding no abnormal responses. The echoencephalogram showed a normal midline. The neurologist suspected that brain trauma and alcoholic encephalopathy accounted for the recent behavioral change. We examined the patient for the first time on the third hospital day (March 14). He was still confused, uncooperative and intermittently restless. He complained of severe, generalized headache. He was grossly obese and cyanotic. Ventilation was moderately limited but adequate at rest. Some moist rales were heard at the lung bases. Cardiac rhythm was regular at 72 per minute. Heart sounds were distant with questionable prolonged, soft-blowing, aortic diastolic murmur. Blood pressure was 180/110. Slightly pitting symmetric ankle edema was present. The neuro-

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logical examination was now completely negative. Pulmonary function screening tests showed only moderate impairment and the patient was considered not to need active respiratory therapy. Tests investigating liver status showed: prothrombin time; 13.6 seconds, control 12.4; thymol turbidity 8.1 units; cephalin flocculation negative; total bilirubin 1.2 mg per cent; direct 0.4 mgm.

On the medical service the patient was treated with bed rest, an anti-atherosclerotic diet, 1,500 calories, one gram sodium; Librium® 20 mgm four times a day, or as required for restlessness; Reserpine .25 mgm tid and Chlorthalidone 100 mgm daily for arterial hypertension. On the 16th and 17th of March the patient was mildly febrile, still confused, disoriented and intermittently restless. Blood pressure became normal by the 18th, but severe generalized headache persisted.

We considered the possibility of a small subarachnoid hemorrhage called by the French school "meningeal epistaxis" and usually related to vascular rupture following arterial hypertension with or without pre-existing round or saccular berry aneurysm of the circle of Willis. As in our patient, there are no signs typical of meningeal irritation. Severe headache and confusion have a sudden onset. The ocular fundi may show retinal hemorrhage, which was not present in this case. The diagnosis may be confirmed by lumbar puncture which shows a hypertensive spinal fluid, uniformly xanthochromic if the puncture is performed after at least 6 to 24 hours of initial bleeding, with increased protein content and commonly an aseptic cellular reaction. Increased production of spinal fluid by the choroid plexus of the lateral ventricles secondary to stimulation by effused blood explains these findings except for the xanthochromy which follows the hemolysis of erythrocytes and the subsequent degradation of hemoglobin. The degree of xanthochromia deepens for a week or more, then gradually clears if bleeding does not recur. Clear, colorless fluid may be present after two to four weeks.

The first spinal fluid obtained the 20th of March—ten days after clinical picture onset—was clear and uniformly xanthochromic. Its pressure was initially 380 mm water and terminally was 180 mm. It should be kept in mind that in this syndrome, the lumbar puncture is not only a diagnostic test, but also a therapeutic measure. However, it is necessary to avoid removal of too much spinal fluid because a sharp drop in pressure can favor a relapse of hemorrhage. The total protein was increased to 300 mg per cent. The cell count showed 1,600 red blood count/cubic millimeter; 154 white blood count with 24 polymorphonuclear leukocytes, 72 lymphocytes and 4 eosinophiles. This was, as described, a meningeal aseptic cellular reaction which may persist longer than the xanthochromia.

Two hours after spinal puncture the patient was calm and asleep. His headache had gone and did not later recur except mildly and occasionally. He was relaxed and the Librium® could be discontinued. He slept well and was more alert but he remained confused and disoriented for an additional week.

On the 27th of March—one week later—we performed the second lumbar puncture. The initial pressure was normal, 120 mm; terminal 90 mm. The spinal fluid was less xanthochromic. The total protein was still increased; 280 mg per cent. The aseptic meningeal cellular reaction persisted: 121 white blood count, with 4 per cent polymorphonuclear leukocytes and 96 per cent lymphocytes.

The third and last lumbar puncture was performed two weeks after the second one. The pressure was normal, the spinal fluid appeared clear, very slightly xanthochromic, the total protein mildly increased; 76 mg per cent and a very small aseptic reaction: 46 white blood count with 2 per cent polymorphonuclear leukocytes and 98 per cent lymphocytes.

Despite this biological improvement in the spinal fluid, the clinical picture was not completely relieved. The severe headache did not recur, but the patient remained intermittently confused, restless, and uncooperative, with loss of memory and hallucinations of sight and sound. These psychic symptoms have been described as persisting after recovery from the subarachnoid hemorrhage and may even lead, as in our patient, to a Korsakoff-like syndrome (Goldflam—1923) during the recovery period, and for a few weeks after the onset. They are attributed to toxic effects of absorbed disintegration products of the effused blood, though there must be other conditioning factors in the individual.

Since, in our case, the rupture of subarachnoid vessels could be secondary to either the acute hypertension or the head injury, we had to consider a post-traumatic psychotic syndrome which may produce the same picture as described in spontaneous, non-traumatic, subarachnoid hemorrhage. There is no direct correlation between the severity of head injury and the development of a post-traumatic syndrome. It may develop in patients who are only dazed by the injury. There is controversy about the relative roles of the injury to the brain and the psychological reaction of the patient to the injury. In some patients the symptoms appear to be related to the brain damage and in others entirely psychological. Probably in the majority both factors contribute. The syndrome persists two to six months in most cases, but the duration is not related directly to the severity of the injury.

Whether the subarachnoid hemorrhage or the brain injury was the principal factor in the pathogenesis of the Korsakoff-like syndrome in our patient

four weeks after the onset is difficult to say because both could explain the clinical picture. Nevertheless, we could point out that a common feature of the electroencephalogram of all patients with head injury is an undue susceptibility of the cortical activity to overventilation. In our patient this test showed no abnormal response. Therefore, it seems likely that the small subarachnoid hemorrhage—meningeal epistaxis, suggested by the clinical picture and confirmed by the lumbar puncture, was the true and only etiologic factor of the Korsakoff-like syndrome in our patient. But only the later evolution could resolve the problem.

By April 25, about six weeks after clinical onset, our patient began to be less confused, more able to cooperate with the ward routine. His speech was clear, he was able to carry out details about the ward and he talked appropriately about his past life. A week later he was well, without headache, confusion, disorientation, or hallucinations. With recovery after six to seven weeks of symptoms we think that meningeal epistaxis can alone explain the whole clinical picture which followed the acute alcoholic intoxication with marked arterial hypertension.

References

1. Des "epistaxis" menigées au cours des Maladies hypertensives. Vaquez et Esmein. Bulletin et Memoires Societe Medicale des Hospitaux de Paris. Tome XII. Troisieme serie. Annee 1906.
2. *A Textbook of Neurology*. H. Houston Merritt, 4th Edition, pp. 205 and 320.
3. *Neurology*. Feiling, pp. 401.
4. *Neurology* (6th Edition—1966). Grinker and Sahs, pp. 946.

Hypoglycemia

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References

1. Galloway, J. A.: Treatment of hypoglycemia secondary to hypoglycemic agents. *Modern Treatment* 3:412, 1966.
2. Kreeger, N.: Tolbutamide-induced hypoglycemia. *New Eng. J. Med.* 2:1585, 1962.
3. Cherner, R., Gropp, C. W., Jr., and Rupp, J. J.: Prolonged tolbutamide-induced hypoglycemia. *JAMA* 185:883, 1963.
4. Gardner, P., Goodner, C. J., and Dowling, J. T.: Severe hypoglycemia in elderly patients receiving therapeutic doses of tolbutamide. *JAMA* 186:991, 1963.
5. Brown, J. D., and Stone, D. B.: Tolbutamide-induced hypoglycemia. *Am. J. Clin. Nutrition* 15:144, 1964.
6. Bird, E. D., and Schwalbe, F. C.: Prolonged hypoglycemia secondary to tolbutamide. *Ann. Int. Med.* 62:110, 1965.
7. Bergman, H.: Hypoglycemic coma during sulfonyleurea therapy. *Acta. Med. Scand.* 177:287, 1965.
8. Alexander, R. W.: Prolonged hypoglycemia following acetohexamide administration. *Diabetes* 15:362, 1966.
9. Cowen, D. L., Burtis, B., and Youmans, J.: Prolonged coma after acetohexamide ingestion. *JAMA* 201:141, 1967.
10. Rull, J. A., and Lenhoff, M.: Prolonged and recurrent tolazamide-induced hypoglycemia: Report of a case. *Diabetes* 16:352, 1967.

11. Bolinger, R. E., Tu, W. H., and Kendall, C.: Oral hypoglycemic agents: clinical experience with 50 diabetic patients. *J. Kansas M. Soc.* 61:135, 1960.

12. Wiederholt, I. C., Genco, M., and Foley, J. M.: Recurrent episodes of hypoglycemia induced by propoxyphene. *Neurology* 17:703, 1967.

LEADERS IN DERMATOLOGY (VOL. 4)

The fourth volume in the series, *Leaders in Dermatology*, describes the life and works of James Clarke White, M.D. (1833-1916), America's first professor of dermatology, and the most influential man of his era in improving the medical school curriculum in the United States.

Complimentary copies of the White biography have been distributed to dermatologists by Syntex Laboratories of Palo Alto, California.

A brilliant lecturer and a strong advocate of clinical studies, Dr. White was one of the most prolific writers in the history of medicine. Between 1856 and 1913, he contributed 125 original articles, 50 reviews, 94 editorials and eight books. In 1887, he published perhaps his most famous book, *Dermatitis Venenata: An Account of the Action of External Irritants Upon the Skin*. It was the first complete book ever published on the subject.

Another important contribution by Dr. White was the description he gave of keratosis follicularis in two original articles which appeared in the *Journal of Cutaneous and Genito-Urinary Diseases* in 1889 and 1890. They were the first descriptions of the disease ever prepared by an American physician.

Dr. White enrolled at Harvard University at the age of 16 in 1849 and was graduated in 1853. He then entered Tremont Medical School in Boston, was selected as a "house pupil" at Massachusetts General Hospital in 1855, and received his M.D. in 1856. Upon receiving his medical degree, Dr. White journeyed to Vienna for a year's study, where he was exposed to many brilliant medical minds. They included such famous doctors as Josef Hyrtl, Ernest Von Brucke, Karl Rokitansky, Joseph Skoda and Karl Sigmund. He was influenced most by Dr. Ferdinand Hebra, whom Dr. White called "the founder of the modern school of dermatology." He returned to the United States in 1857, and maintained a general practice in Boston. From 1860 to 1863, he devoted most of his time to a dispensary for skin diseases he had co-founded in Boston. In 1863 Dr. White was named one of Harvard's first University Lecturers to improve the education of future physicians. A colleague in this project was Oliver Wendell Holmes. Dr. White gave six lectures on common skin complaints, the first such instruction ever given at Harvard Medical School.

It was an address that Dr. White delivered in 1870 at the opening of the University's winter lecture

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Infectious Mononucleosis—

—A Current Concept and Treatment

JOSEPH D. BECK, M.D., *Topeka*

INFECTIOUS MONONUCLEOSIS appears to be a post-infectious syndrome which is most likely an individual auto-immune response to a specific virus. Clinically, the disease is characterized by fever, exudative pharyngitis, adenopathy and lymphocytosis. In addition, a rubella-like morbilliform rash is seen in 10 to 15 per cent of patients, and palpebral edema in 12 per cent. Hepatocellular damage has been demonstrated by abnormal liver function tests in at least 50 per cent of cases. Other less frequently seen complications include hepatitis, meningoencephalitis, thrombocytopenic purpura, hemolytic anemia, optic neuritis and keratitis.¹

The probable etiologic agent has been recently identified by Henle, Henle, and Diehl² at the University of Pennsylvania. They were able to demonstrate a herpes-like virus in the tissues of a laboratory assistant with infectious mononucleosis. This virus is the same as the EB virus that produces Burkitt's tumor, a malignant lymphoma common in children who inhabit the lowlands along the Nile Valley. In confirmation, Niederman and co-workers³ reported that an indirect immunofluorescent staining technique was positive for EB virus in 29 successive cases of infectious mononucleosis.

Evans⁴ reported in 1960 that he was unable to confirm the hypothesis that infectious mononucleosis is an auto-immune or hypersensitivity phenomenon by an indirect fluorescent antibody technique. Another investigator¹ suggests that the incubation period of 30 to 40 days is consistent with the theory that infectious mononucleosis is a postinfectious syndrome related to a virus such as rheumatic fever is to the streptococcus.

The Use of Steroids

Steroids have been used in the treatment of infectious mononucleosis with varying degrees of enthusiasm since 1951. Evans⁴ conducted a small, controlled study with prednisolone and aspirin. He used the following dosage: first and second days, six tablets of 5 mg; third and fourth days, five tablets; and fifth and final day, four tablets. He could not detect any difference between drugs, although he admitted that the criteria of measuring therapeutic response was poor.

Hughes and Paulley⁵ treated ten patients with severe infectious mononucleosis with 20 to 60 mg prednisone

daily in divided doses for 10 to 30 days. The dosage was reduced gradually over several additional weeks.

Infectious mononucleosis appears to be a postinfectious syndrome based on an individual's auto-immune response to a specific group of viruses; and, thus, not an infectious disease *per se*.

They reported a beneficial effect in all patients, particularly in the reduction of fever. They suggested that steroids be used even in uncomplicated cases that continue to have fever and malaise. It should be noted that the dosage used and the duration of therapy may be responsible for the good results.

Antila and co-workers⁶ administered long-acting corticotropin intramuscularly and penicillin orally to 51 patients. A control group of 60 patients received penicillin only. The dosage of corticotropin was: first day, 60 I.U.; second day, 40 I.U.; third and fourth days, 20 I.U. each day; and fifth day, 10 I.U. Children under ten years received one-half this dosage. While the corticotropin did shorten the duration of fever in some patients there was little or no effect on other symptoms. The authors concluded that it should be used only in severe cases with high fever and in combination with antibiotics.

Prout and Dalrymple⁷ conducted a double-blind study with 82 patients using paramethazone or placebo. The dosage was eight tablets of 2 mg initially and then reduced by decrements of one tablet each day as long as the patient improved. If there was no improvement or if the patient became worse, the dosage was increased to eight or nine tablets and decreased as before. Their results indicated that the steroid is safe and significantly shortens both duration of fever and stay in the hospital. They suggested further studies to confirm their findings.

The present study consisted of private patients, most of whom had uncomplicated infectious mononucleosis. The purpose is to determine if graduated corticosteroids have a beneficial effect in the less severe forms of this disease, and whether they should be used routinely as has been suggested by some investigators.

Materials and Method

The study group consisted of 26 patients, including two siblings, with infectious mononucleosis confirmed by the heterophil agglutination test or by the Monospot® test developed by Ortho Diagnostics. The age range was two to 19 years with a median age of 15 years and a mean age of 12.5 years. There were nine males and 17 females. Twenty-five patients had pharyngotonsillitis (five mild; ten moderate; and ten severe). Fever up to 104 F was recorded in 17 patients; the median was 101 F. Twenty-five patients had cervical adenopathy. The white blood count range was 5,900 to 30,100 with a median of 11,700; 19 patients had counts over 10,000. The lymphocyte percentage ranged from 12 to 80 with a median of 65; there were four normals, and the balance ranged from 40 to 80.

Each of the two siblings developed the disease about 50 days after the original condition was diagnosed. Only five of the patients had tonsillectomies prior to contracting infectious mononucleosis. About 20 to 25 per cent of the teenage group reported a recent mild upper respiratory infection or a sore throat. There were no reports of herpes simplex. Three of the younger children were acutely ill with a membranous tonsillitis accompanied by dysphagia and some dyspnea. One six-year-old child had a recurrence of adenopathy without fever or tonsillitis. Personal and family histories revealed no significant allergic diseases or hypersensitivities. Only three patients were hospitalized, one for biopsy of recurrent adenopathy.

Twenty-five patients were given methylprednisolone acetate (Medrol®), and one was given dexamethazone (Decadron®). The graduated dosage schedule was followed as recommended by the manufacturers for acute allergic disorders and designed to avoid withdrawal problems. The young adult patients were given methylprednisolone acetate 4 mg tablets according to the following schedule: first day, 6 tablets, then one tablet less each day for a total of six days. The same schedule was used for younger children with dosage adjusted to body weight. The individual given dexamethazone received four 75 mg tablets the first and second days; two tablets, third day; and one tablet, fourth and fifth days. In no instance were steroids given for longer than this five- or six-day treatment schedule. Twelve patients treated early in the series received antibiotics, either triacetyloleandomycin or penicillin. The remainder received only the steroid plus aspirin for fever or discomfort.

Results and Conclusions

Clinical progress after therapy was excellent. Symptoms, including pharyngotonsillitis, fever, elevated

white blood counts, splenomegaly, and lymphocytosis, were absent or much improved. Because of this improvement, only the first 12 patients received antibiotics; the remainder did well on the steroid alone. The response was more dramatic in cases treated early, rather than in those who had had the condition for some time. With two exceptions, in which the diagnosis was made late, all patients were able to return to school shortly after the course of therapy was completed. They were, of course, warned to restrict their activities.

There were no side reactions attributable to the steroids. The use of short-term steroid therapy therefore appears to be quite effective and safe if the usual precautions are observed.

References

1. Joncas, J.: Infectious mononucleosis. *Canad. Med. Assn. J.* 96:1212-1216, 1967.
2. Henle, G.; Henle, W.; and Diehl, V.: Relation of Burkitt's tumor-associated herpes-type virus to infectious mononucleosis. *Proc. Nat. Acad. Sci. USA.* 59:94-101, 1968.
3. Niederman, J. C.; McCollum, R. W.; Henle, G.; and Henle, W.: Infectious mononucleosis: Clinical manifestations in relation to EB virus antibodies. *JAMA* 203, No. 3, 205-209, 1968.
4. Evans, A. S.: Infectious mononucleosis in University of Wisconsin students: Report of a five-year investigation. *Am. J. Hyg.* 71:341-362, 1960.
5. Hughes, J. P., and Paulley, J. W.: Steroid therapy in glandular fever. *Postgrad. Med. J.* 36:553-556, 1960.
6. Antila, V.; Makela, T. E.; and Klemola, E.: Corticotropin in the treatment of infectious mononucleosis. *Acta Med. Scand.* 171:345-348, 1962.
7. Prout, C., and Dalrymple, W.: A double-blind study of eighty-two cases of infectious mononucleosis treated with corticosteroids. *J. Amer. Coll. Health Assn.* 15:62-66, 1966.

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Newsletter

Should Drugs Be Prescribed by Generic or Brand Name?

A GREAT CONTROVERSY now exists concerning whether physicians should prescribe drugs by generic or brand name. The brand name refers to the patented trademark for a specific pharmaceutical company's name for a drug formulation. The generic name is a notation of the active ingredient itself. For example, there are at least 33 brand names for products containing the active ingredient designated by the generic name, meprobamate. Are all these products therapeutically equivalent? Is it cheaper to prescribe by generic or brand name? As practicing physicians, we need to answer these questions since both play a role in the patient's welfare.

The *Medical Letter on Drugs and Therapeutics*¹ has reported several studies which demonstrate that randomly selected tablets of prednisone, meprobamate, chlorpheniramine, and diethylstilbestrol, when analyzed according to United States Pharmacopeial methods, usually contain the stated amount of active substance within accepted tolerances. Does this fact assure therapeutic equivalence? Recent studies² have demonstrated that equivalent blood levels are not necessarily achieved when different formulations of the same active substance are studied in normal human volunteers. For example, if tolbutamide (the active substance in Orinase®-Upjohn) is prepared in a tablet similar to Orinase® except that the amount of disintegrant (Vee Gum) is halved, the blood level of tolbutamide and its hypoglycemic effect is significantly reduced in the volunteers studied when this preparation is compared to Orinase® itself. It is well known that many factors such as pH, binders, particle size, compression of tablet, thickness and type of coating etc. affect the rate of dissolution and rate at which the drug becomes available for gastrointestinal absorption. Dr. C. Martin at Georgetown Division,

D. C. General Hospital, has compared the formulations (containing chloramphenicol) of several pharmaceutical companies. It was found that Chloromycetin® (Parke-Davis) consistently produced a higher blood level of chloramphenicol than did the products of the other companies containing the same active substance. Indeed, with one company's product, levels of chloramphenicol in the blood were barely detected. Prior to this investigation, the Food and Drug Administration certified batches of chloramphenicol only by assaying the quantity of active substance in each formulation. This concept in regulations is now being reevaluated. Dr. Martin also showed that if the active ingredient of Chloromycetin® was recrystallized from alcohol and then given to patients, the blood level of chloramphenicol now achieved was reduced to the level of the other products. These studies suggest that the blood level is dependent, in part, on crystal size. Other drugs were also studied and, in some instances, the brand named product such as Dilantin® (Parke-Davis), produced a lower blood level of diphenylhydantoin than some, but a higher blood level than other generic named products. These studies are interesting in view of a report in the *Medical Journal of Australia*,³ that an unusual percentage of patients developed signs of toxicity with Dilantin® during the middle of 1968. Further investigation revealed that the excipient in the capsules of Dilantin® had been changed from calcium sulfate to lactose several months prior to this observation. Blood levels were not available so that a definitive statement cannot be made concerning the cause of the increased toxicity, but it appears likely that the change in excipients changed the rate of absorption of the drug in humans. However, other factors could be involved since it is also known that other drugs such as

bishydroxycoumarin (Dicumarol), disulfiram (Antabuse), isoniazide, para-aminosalicylic acid (PAS), phenylbutazone (Butazolidin), and phenylhydantoin (Analexin) potentiate the activity of diphenylhydantoin. (The mechanisms involved in these interactions will be the subject of future newsletters.)

Although the quantity and availability of the active ingredient may be optimal, purity is also a consideration. It has been demonstrated that a protein contaminant from the manufacturing process, not penicillin, was the cause of allergic response in some patients supposedly sensitive to this antibiotic.⁴ The USP specifications require only that formulations contain at least 85 per cent penicillin G; most manufacturers, however, have greater than 98 per cent in their products. These examples stress the importance of standardization and quality control so that all products are equivalent in all respects.

Since brand named products as well as generic named products may vary, are there any rational reasons for prescribing by generic name? Surveys have indicated that generic named products can frequently be purchased at a slight-to-moderate savings, but these savings are of no value if they occur at the expense of giving the patient an inferior product. There is one undeniable reason for physicians to prescribe by generic name—it is the best way for him to have some concept of the drug he is prescribing for his patient, especially if it contains more than one active ingredient. All too often we have seen patients treated for an infection with an antibiotic to which he does not respond. Therapy is changed to a different antibiotic which is actually the same antibiotic since the change was made from one brand name antibiotic to another, not realizing that, although the brand

names were different, the active ingredient was the same. Prescribing by generic name would prevent this type of poor therapy.

Another excellent example recently appeared as a case report.⁵ A depressed patient was treated with Tofrānil® (Geigy) and developed liver toxicity. This drug was stopped and another tricyclic antidepressant, Pertofrane® (Geigy) was substituted. The patient's toxicity continued and she expired. If one had prescribed for this patient by generic name, he would at least be more likely to realize that when the patient was switched from imipramine (Tofrānil®) to desipramine (Pertofrane®) he was, in essence, receiving the same drug. Even if not aware that desipramine is demethylated imipramine and its major metabolite, the similarity in names should have suggested a similarity of structure and prompted a quest for further information about the substances.

Thus, there can be no doubt of the importance of prescribing by generic name and at the same time, no doubt, differences may and do exist between products containing the same active ingredients. We reconcile these two divergent facts by prescribing by generic name and following this by the name of the manufacturer of the product we wish our patient to receive.

Example: Digoxin—Burroughs Wellcome
Chloramphenicol—Parke-Davis
Chlorothiazide—Merck

References

1. *Med. Lett. Drugs & Therap.*, 4:15-62; 7:18, 1965; 7:35, 1965; 9:41, 1967.
2. *JAMA*, 206:1745, 1968.
3. *Med. J. Australia*, 2:639, 1968.
4. *Lancet*, 1:1177, 1967.
5. *JAMA*, 206:642, 1968.

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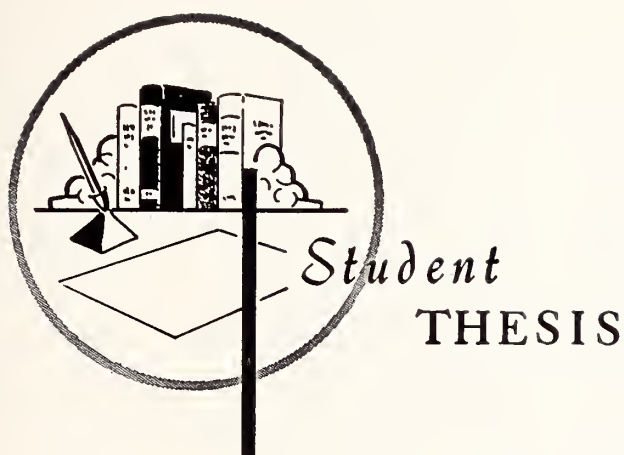
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The Epidemiology of Syphilis

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History

THE ANTIQUITY OF SYPHILIS is not now known and will, in all likelihood, never be known. There is ample evidence, in skulls and long bones, that the disease existed on both American continents at least ten thousand years ago. But man's residence on these continents is only a brief period in his long history and how he came to occupy them remains a matter of theory. *Treponema pallidum* may be a mutation or an adaptation of a much older spirochete. It is likely that this mutation or adaptation occurred after man had migrated to the Americas and that it was a rather recent event. Regardless of its antiquity, the modern history of the disease is well documented. Syphilis is unique because of the suddenness with which it appeared in medical history.

There now seems to be incontrovertible evidence that syphilis was introduced into Western Europe by sailors returning from the new world with Christopher Columbus. It was a new disease which reached pandemic proportions very quickly. Dr. Pusey's book, *The History and Epidemiology of Syphilis*, presents this evidence very clearly. Two points deserve mention. First is the lack of any adequate proof of syphilitic lesions in skulls or long bones, of pre-Columbian age in Europe, Asia or Africa. How-

ever, pre-Columbian skulls and long bones found in North and South America show definite syphilitic lesions. The second is Montejo's translation of a work by Dias de Isla, a Spanish physician who was a contemporary of Columbus. He tells of treating a new disease, almost surely syphilis, which the sailors returning from the new world brought home with them.

There are those who disagree with this view and maintain that the disease had been in Europe for many years and merely assumed a more virulent form. The bulk of medical historians accept the former theory.

Regardless of its origin, there is no question that a great pandemic of syphilis swept over Western Europe in the late 15th century. It began in 1494 when Charles VIII of France led a mercenary army into Italy. In this army were Spanish soldiers and, indeed, some of the men who had sailed with Columbus on his first expedition. Charles' army proceeded through the upper peninsula unopposed and took Naples after a very short siege. In a few weeks this conquering army was retreating in shambles. It had been decimated by an entirely new and extremely virulent malady, and syphilis had its first effect on the history of Western man. As these mercenary soldiers returned to their respective homes, new epidemics sprang up. The disease appeared in France and Switzerland early in 1495, Holland in 1496, in England in 1497 and in Russia in 1499. Vasco de Gama and other Portuguese explorers had the dubious honor of carrying this plague to Asia and

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Barnes is now in his first year of residency in dermatology, Brooke General Hospital, Fort Sam Houston, Texas.

Africa and it is well documented that this plague accompanied their explorations.

This new human misery soon acquired a variety of names and these names attest to its spread. The Italians called it the Spanish or French disease; the French blamed the Italians; the English blamed the French, and the Russians blamed the Poles etc., etc. The Spanish, with much greater accuracy perhaps, named it the disease of Espanola (Haiti). Fracastori gave us its modern name in a poem *Syphilis Sive Morbus Gallicus*, published in 1530. The word, aptly or not, probably comes from the Greek ($\delta\tilde{\gamma}\varsigma$) swine ($\phi\acute{\iota}\lambda\omicron\varsigma$) lovers.

For the first 50 years in Europe, syphilis was a horrible and often an immediately fatal disease. It had found a virgin population. This population had neither immunity nor resistance. Those afflicted were literally prostrated, often running very high fevers. They became covered with large, weeping vesicles and at this stage syphilis was spread by other than sexual contact. Paris officials soon declared that anyone with this affliction would be thrown into the Siene. Syphilitics in other cities were even more unfortunate and faced a death penalty. Syphilis was indeed the "great pox" requiring another disease (much more "intolerable" to the present generation) to be called the "small pox." After this honeymoon, the corkscrew organism and its human host came to a better adjustment. It was less acute and disfiguring and took longer to accomplish its dirty work.

From the beginning, physicians studied the disease and for the next two hundred years some of the great names of medicine added to a growing body of knowledge. These men had a more than adequate clinical knowledge of syphilis. Many treatments were devised, of which only mercury proved to be of any worth. Paré is usually credited with introducing this treatment, but since mercury was commonly used in skin diseases this is only a matter of conjecture.

John Hunter, in 1797, inoculated himself with the pus from a gonorrheal lesion in an attempt to prove that it was only a variation of syphilis. He developed syphilis and so assumed he was correct. Unfortunately, this daring experiment led many physicians astray and delayed discovery of the true, natural history of syphilis. By the middle of the 19th century, clinical observation and gross inspection had reached their limits.

In the last 60 years, medicine, using more sophisticated techniques, has developed an intimate knowledge of syphilis. Metchnikoff transmitted it to apes, providing a means for studying it in the laboratory. In 1910 two significant discoveries were made. Schaudinn and Hoffman succeeded in identi-

fying the causative organism. Wassermann, using complement-fixation techniques, developed a reliable laboratory test to screen the blood for this infection. Shortly thereafter Erlich discovered arsphenamine as a much more specific treatment. The 1920's and 1930's saw bismuth, iatrogenic malaria and diathermy used in treatment—the last two being used primarily to treat paresis. Also, in the 1930's the Public Health Service began a serious campaign against syphilis under the directorship of Surgeon General Thomas Parran.

At this juncture in the history of syphilis Alexander Fleming's serendipitous discovery enters the story. Penicillin was to have a profound affect on this history. This effect is of vital concern to medicine today.

Syphilis Since 1938

Although syphilis naturally falls into several stages, there are two broad classifications. One of these is infectious and the other all of the latent manifestations. The former lasts only a brief 11 weeks, while the latter can last over 50 years. The statistics presented in this paper will deal primarily with infectious syphilis since it most concerns the epidemiologist and it is with this phase of the disease that medicine must deal if syphilis is to be eradicated.

The graph (*Figure 1*) gives a picture of the rate of infectious syphilis in the United States after 1941.

This graph indicates that with the advent of a serious public health program (1939) and penicillin therapy, syphilis was a significantly declining health problem in this country. There were 106,000 reported cases of infectious syphilis (rate of 75.6/100,000) in 1947. Ten years later this had dropped to 6,000 cases (rate of 3.8/100,000). Deaths attributed to all stages of syphilis declined from 14,500 in 1939, when the venereal disease control program began, to 3,870 in 1956. Psychotic hospital admission of parietic patients decreased from 7,800 to 1,663 in 1955.

The Public Health Service and private medicine were proud, and justly so, of this record. Syphilis seemed about to join smallpox, tuberculosis, diphtheria and typhoid as medical curiosities. Indeed, in the middle and late 1950's, the lay public, many physicians and public health officials felt that this disease would soon disappear. The federal government reflected their concurrence by decreasing spending on venereal disease control to \$3,000,000 in 1955. They had been spending over \$17,000,000 in the post-war years. Discounting inflation, this amounted to an 82.4 per cent cut in funds.

Everyone connected with the diagnosis, treatment and epidemiology of syphilis began to relax and

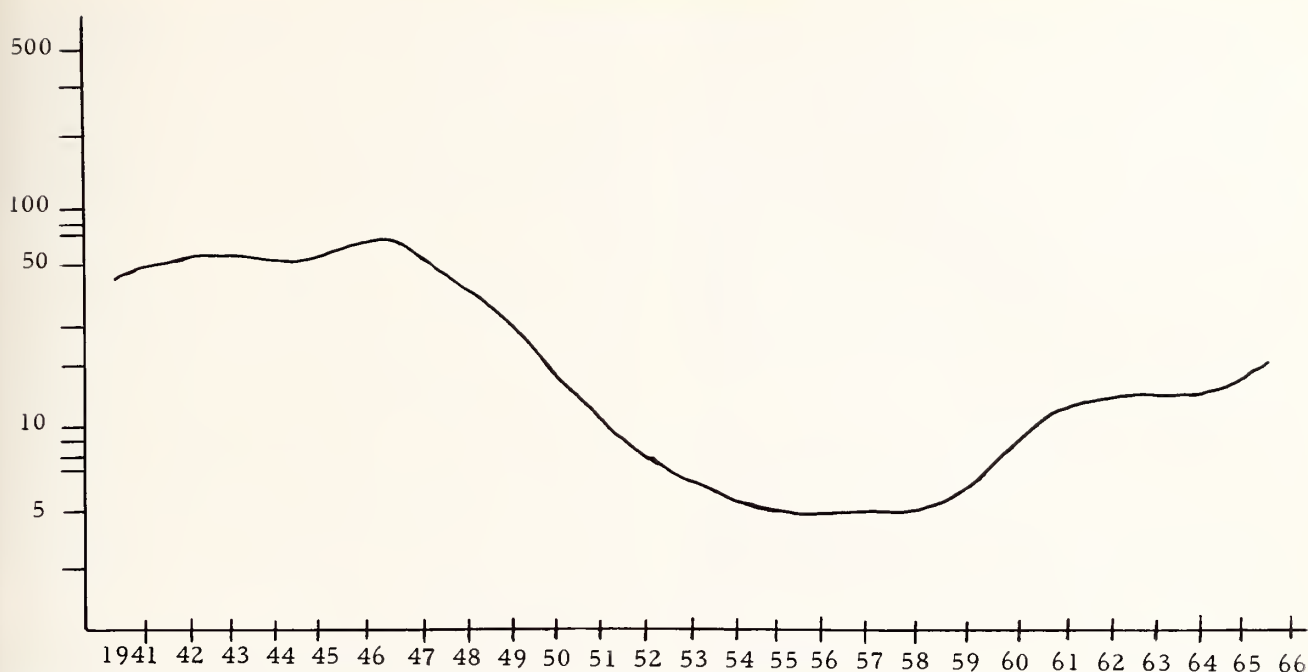


Figure 1. Primary and secondary syphilis: Cases per 100,000 population, United States. Fiscal years 1941-1966.

wax optimistically. However, this was only the lull before the storm.

Reported cases of infectious syphilis had plateaued at 6,000 cases. In 1958, instead of declining further as predicted, the number began increasing. The reported cases rose to 20,000 in 1962; 22,000 in 1964; 23,000 in 1965; and 24,000 plus in 1966. As it became evident that this was not a temporary phenomena, interest in syphilis was rekindled. The Public Health Service and other agencies began searching for the causes of this increase. Under scrutiny it was found that the graphs, tables and other statistics were deceptive. The optimism had been premature. They found that this remarkable decline in incidence was only relative, more apparent than real.

Factors Accounting for This Deception

The pre-World War II treatment of syphilis consisted primarily of Erlich's arsphenamine, other arsenicals, bismuth and occasionally mercury. Iatrogenic malaria and diathermy were used to treat paresis. This regimen required an expert knowledge of clinical syphilis which has a multitude of forms. The therapeutic index of these drugs was small and they had to be given for extended periods of time. Aside from the danger of toxicity, there was a good deal of expense involved. Consequently, most patients were being treated in public health clinics. Private physicians had neither the facilities nor the time to undertake this therapy. Sir William Osler once said that "to know syphilis was to know medicine."

Those who knew the disease well were mostly in the treatment centers or at universities.

In 1943, in New York City, two sailors with syphilis were treated with a new and hard to get antibiotic—penicillin. At first penicillin was used in conjunction with the older forms of therapy. It had to be given every three hours around the clock to maintain adequate blood levels. This changed with the development of long-acting forms and revolutionized the treatment of syphilis as well as other infections. Penicillin also had the advantage of a remarkably large therapeutic index. Almost any physician could use it with impunity. Allergic reactions proved the only major drawback, and newer antibiotics soon proved almost as effective.

In the case of syphilis, this new therapy had manifestations other than just curing the disease. It took treatment out of public health clinics and put it into the offices of private physicians. This had a major effect on the epidemiology of syphilis.

Sir William Osler, again speaking of venereal diseases, had said that they were "the most formidable enemy of the race—an enemy entrenched behind the strongest human emotions and the deepest of social prejudices." The public clinics had been forcing the disease into the open and allowing adequate epidemiologic investigation. Penicillin, quite to the contrary, allowed syphilis to go underground, as we shall see.

That it went underground became apparent in 1962 when the American Health Association conducted a survey of private physicians regarding the

number of cases of venereal disease they were seeing. A short questionnaire was mailed to over 183,000 physicians asking them to give the number of the various venereal diseases they had seen between April 1 and June 30 of that year. An amazing 131,000 plus, or 71 per cent, replied. Five per cent of those replying had treated or diagnosed a case of infectious syphilis during this period. Of the 5 per cent, 53 per cent were general practitioners; 40 per cent were specialists; and 6 per cent were osteopathic physicians. Table 1 lists a small portion of their findings.

TABLE 1

VENEREAL DISEASES TREATED BY PRIVATE PHYSICIANS VS. SAME DISEASES REPORTED TO PUBLIC HEALTH AGENCIES APRIL 1, 1962 TO JUNE 30, 1962.

	<i>Treated</i>	<i>Reported</i>	<i>Per Cent</i>
Infectious syphilis .	13,930	1,576	11
Other stages	34,069	12,785	30
Gonorrhea	156,515	16,907	11

The results of this study showed that over 76 per cent of infectious syphilis was being treated by private physicians but only 11 per cent of these cases were being reported to any public health agency. Projecting these figures, it now seemed that the optimistic plateau of 6,000 cases actually represented over 75,000 cases. Dr. Thomas Parran, the surgeon general of the Public Health Service, who had initiated the venereal disease control program, had stated that, "Syphilis can never be (eradicated?) *controlled* (*italics mine*) while more than one half of the cases are not recognized for more than one year." How near could we be to controlling it when Dr. William Brown, chief of the Venereal Disease Branch of the Public Health Service, estimated that the 20,000 cases in 1962, in all likelihood represented 120,000 cases? Projecting further, this meant that there was a reservoir of 1,200,000 people with untreated syphilis in the United States. Imagine the panic if there were this many cases of smallpox or over a million typhoid carriers discovered in this country. Is syphilis any less a killer, acripler, or a financial burden than these diseases? I think not.

In the *United States*, one thousand persons a month are dying from some stage of syphilis. Of untreated syphilitics one in two hundred will become blind, one in 48 will develop paresis, one in 25 will be incapacitated to some extent, and one in 13

will have the cardiovascular disease. With a reservoir of 1,200,000 this means there are 25,000 potential paretics, 6,000 destined for blindness, 23,000 tabetics and 90,000 who may have some form of cardiovascular difficulties. To maintain the present paretics and syphilitic blind costs the taxpayer \$56,000,000 a year and the loss due to other manifestations cannot be calculated.

The progression of syphilis is not geometric, but for each treated case of infectious syphilis there are 1.15 cases among contacts. If 75 per cent are being privately treated and only 11 per cent are being reported, we not only are not controlling syphilis but the incidence is actually increasing, because few, if any, private physicians have the time or the inclination to do adequate contact interviewing. This, then, is the major factor accounting for the apparent, but unreal, decline.

However, there are other factors involved in an increasing incidence of the disease. I think that the slow rise in the last nine years reflects the following factors. I must also say that no increased reporting by private physicians accounts for the upward swing of the graph.

1. There has now been a general improvement, socio-economically, in our society but no improvement in social habits. In fact the very permissiveness of our society when dealing with its teen-age children works against controlling syphilis. Our attitudes towards sex, especially premarital sex, also contributes to the higher incidence.

2. The introduction and wide use of oral contraceptives has decreased the use of condoms which offered a good measure of prophylaxis. I might point out that the military no longer maintains prophylactic stations. Their value as a preventative measure may have been small, but a few infections must have been prevented. The military was also lured by this false sense of security.

3. Homosexuality is, and has been, on the increase in this country for a number of years. A recent book, *The Sixth Man* states that one of every six American men have some homosexual activity during their lives. This particular group is very hard to control for several reasons. There is a social stigma about homosexuality that makes these individuals naturally reticent. They are more promiscuous, having 3.8 times as many contacts per month as heterosexuals. The primary lesions are often anal or oral and difficult to pick up on routine examination. Physicians are reluctant to treat these people for fear that they will refer friends and jeopardize their practice.

4. The ready availability of penicillin has allowed many people to treat themselves, often inadequately.

5. Diminished control measures as outlined above, which fortunately are now becoming more widely used.

6. Populations are more mobile than ever before. This is especially true of Americans. This, in affect, broadens the basic reservoir. Consequently, in 15 of 19 Western European countries the incidence of syphilis is also increasing.

7. Last but not least is the fact that medical students and house staff receive almost no training about syphilis. One author estimates that, on the average, the class of 1963 had only two hours of clinical or didactic instruction about syphilis. Few physicians in training ever see a case of infectious syphilis. If the clinical disease cannot be taught at least the epidemiologic importance of it should be emphasized.

These, then, are the factors accounting for the increasing incidence and lack of control. Most depressingly, the 15- to 19-year-old age group has the largest share of this increase. We are giving our children a better life and more syphilis. If Americans are reluctant to personally educate their children about sex, they are adamant about ignoring this deadly killer. Fortunately many school systems are now assuming this responsibility. Several years ago the Kansas Education Authorities approved a plan to give instruction about venereal diseases in the public schools. They are the exception.

This is the status of the problem and next to be considered is the measures which can be taken to alleviate it. They are primarily epidemiological.

Epidemiology of Syphilis

An acceptable definition of epidemiology is, "The study of the distribution of disease in a population and the search for reasons for that distribution." This definition applies to syphilis but must be expanded to include treatment of the disease and an active tracing of individuals who have had contact with the infection.

The distribution of syphilis in the population cannot be determined exactly. The best that can be done is an estimation based on reported cases and studies like the one mentioned earlier. I doubt that they are very accurate. The reasons for this distribution are fairly clear.

The disease is spread by sexual contact with a person who has the disease in the infectious stage. Distribution in any one group is therefore a function of the promiscuity of the individuals in that group. This explains why it is found in a higher percentage of homosexuals; males outnumber females almost four to one; and the incidence among teen-agers is so large. For the same reason it is higher in the Negro population and the lower

socio-economic groups. The last two groups are not as educated and are not as accustomed to seeking medical aid for anything less than prostrating conditions. The middle class and above are better educated, less promiscuous and have more available medical care. They also are more apt to seek advice about less significant lesions. Their influence on their private physicians and the stigma attached to syphilis allows it to continue in this group.

These reasons are of only secondary importance in the case of venereal diseases. The control and eventual eradication of syphilis are not dependent on its distribution or the reasons for that distribution. It is almost wholly dependent on adequate interviewing of primary cases for their sexual contacts and the follow-up of these contacts.

Epidemiologically, we are concerned with three groups and I will consider each of these separately. First, and by far the most important, is the *contact*. Each primary case has on the average five sexual contacts. A contact is defined as any person who has had sexual relations with the patient while he was in the infectious stage. If all of the contacts could be found, interviewed, followed and treated, syphilis would cease to be a significant health problem. This is a rather idealistic goal. Pragmatically, only 30 per cent of these contacts need to be located to provide adequate control.

About 75 per cent of patients with infectious syphilis name one contact and 50 per cent name more than one. At present 80 per cent of those named are located, examined and treated. Indicative of the importance of contact tracing is the fact that of the 22,000 cases of infectious syphilis in 1962, 60 per cent were brought to treatment after being named a contact. These figures indicate that the Public Health Service has the capability to do this procedure. By reporting only 11 per cent of their primary and secondary syphilis cases, private physicians are allowing it to spread.

Contacts fall into three groups: the marital who have a 50 per cent infection rate; multiple exposures during the infectious period, which yield 39 per cent new infections; single exposures during the infectious period, yielding 30 per cent of the new infections. Contacts can also be assigned a rank order. Fifty-three per cent of the new cases were named as a first or second contact; the third and fourth named accounted for 17 per cent and all others 30 per cent.

A national survey in 1963 studied the value of contact tracing. To evaluate this quantitatively they defined the stages of syphilis explicitly.

1. The incubation period lasts three weeks after the initial contact. During this period the person cannot transmit the disease.

2. It remains in the primary stage five weeks and is then transmissible.

3. The secondary stage lasts six weeks and is also infectious.

4. After 14 weeks it enters a latent stage which is not infectious.

Defined this way a patient can only transmit the disease for a total of 11 weeks. This neglects the three per cent of the treated and 25 per cent of the untreated, who relapse to an infectious condition.

Under the above conditions, if 1,000 cases of primary syphilis were treated two weeks after the onset of signs and symptoms they would have infected 340 people already and 850 persons would be infected during the full five-week period. The same number of secondary cases would infect 200 new people in four weeks and 300 in the full six-week period. Left untreated for the full eleven-week period, these 1,000 cases would yield 1,150 new cases for a spread rate of 1.15. However, if all one thousand were treated within one week of the onset of signs and symptoms the spread rate would be zero.

If private physicians are treating 75 per cent of infectious syphilis cases and (optimistically) reporting 11 per cent, then there is a ready explanation why the incidence is increasing. Only one third of the necessary 30 per cent are receiving the benefit of an epidemiologic workup. Without this workup the cause is hopeless.

The study also revealed that one half of those named as contacts, who were infected, knew they had it but would not voluntarily seek treatment.

About five years ago a new technique, called cluster tracing, was developed. The primary case was interviewed for suspects and associates. A suspect is a person, named by the original patient, who he thinks might have the disease but who had no intimate contact. An associate is someone named as a suspect by a contact of the original case. Later the cluster technique was expanded to include examination of the patient's family even though they were not named. The cluster technique uncovered 12 per cent more new infections, which would have been missed if only contacts had been followed up.

Contact tracing and the cluster technique have several disadvantages. They require a great deal of time. On the average, the initial interview takes 45 minutes. Often two or more interviews are necessary. Trained interviewers gain the most information and must have tact, skill and above all, patience. The practicing physician does not have the time, training or facilities to accomplish these interviews. The different public health agencies have the trained men; are more than willing to cooperate in every way; and have a wide variety of facilities available. But before any of these can be brought into play the case *must be reported*.

Physicians offer a variety of excuses for not reporting their cases. Many contend that it would interfere with the doctor-patient relationship. The Public Health Service has tried to make it clear that this would not happen. They are more than willing to leave the diagnosis and treatment to the individual doctor. All they wish is to discover the source of the infection and those who may be infected and bring them to treatment, which would be accomplished by the private physician. Another excuse is that the mechanism for reporting takes too much time. This is ridiculous since the form is very short and could easily be filled out by office personnel. Then there is the excuse that it would offend the patient. This, I think, has some validity. There remains an aura of "uncleanliness" about syphilis and this is understandable considering its mode of spread. A physician's responsibility is to inform the patient that this aura is a false one and pave the way for adequate contact interviewing. No doctor sees so much infectious syphilis that it is likely to affect his practice from the standpoint of economics. It would be considered negligence not to have a serology on a pregnant woman. The child might have a deforming disease. One unreported case of syphilis can leave as many as 30 people untreated. These people may become blind, insane or, worse yet, infect many others.

In all 50 states there is a law requiring syphilis to be reported. Physicians are setting a rather bad example by blatantly ignoring this law. So far it has proven unenforceable. Dr. Brown offers a very good reason for this fact. Syphilis is a "tolerable" disease compared with a disease such as smallpox. A few cases of smallpox in this country result in headlines, panic and the mobilization of all our public health resources. An *epidemic* of syphilis rarely receives mention in even the medical literature. The reasons for this are buried somewhere deep in human nature. Yet syphilis has killed, maimed, and crippled many more people than smallpox and continues to do so.

There remains another aspect of the epidemiology to be mentioned. Contact tracing will uncover a large number of people. Many of these people will have no clinical evidence of infection. Although numerous serological tests are available they are not infallible. Syphilis is not only a disease of protean manifestations but can hide the evidence of its presence most effectively. As mentioned previously it can also relapse. This entails that any contact, suspect, or associate in which syphilis cannot be definitely ruled out be treated. This procedure is called epidemiological treatment and merely amounts to an insurance policy. One injection of 2,400,000 units of benzathine penicillin G (1.2 million in each buttock) is sufficient.

Those patients found to be infected must be followed for at least several years with periodic serologies because of the possibility of relapse.

The Public Health Service will furnish the penicillin free of charge and will gladly undertake the responsibility for follow-up.

Epidemic of Syphilis in Wichita, Kansas—1966

The outbreak of syphilis in Wichita serves as a good example of the methods and effectiveness of the epidemiology of this disease (*Table 2*).

TABLE 2
REPORTED CASES IN WICHITA, KANSAS,
1954-1965

	Primary	Secondary	Early Latent
1954	5	0	48
1955	3	2	31
1956	2	3	30
1957	3	2	13
1958*	2	3	9
1959	3	5	12
1960	9	5	16
1961	3	5	13
1962	4	7	13
1963	9	9	17
1964	4	2	3
1965	3	4	19

* In 1957 the early latent period was shortened from four years to one year.

During 1966 there were 44 cases of primary and secondary syphilis and 15 cases of early latent syphilis reported or discovered by interviews in Wichita. As can be seen from *Table 2* this is a significant increase. The first case in the long chain came to the Wichita-Sedgwick County Health Department in February. The syphilis had been discovered by a routine serology, and the patient was referred there by a private physician. From this initial patient an eventual chain of 42 primary and secondary and 14 cases of early latent syphilis were found. There were two isolated cases of infectious and one isolated case of early latent syphilis. *Table 3* gives the distribution of these people and those named as contacts or suspects.

There were 30 males and 19 females involved in the chain. The age range was from 15 to 60 years with the average age being 25.4 years. A wide occupational range was covered including fireman, housewife, prostitute, civil service worker and air

TABLE 3
DISPOSITION OF CONTACTS AND SUSPECTS
OF INFECTIOUS SYPHILIS IN WICHITA,
KANSAS, 1966

	Number
Contacts	227
Infected	56
Primary and secondary	42
Early latent	14
Not infected	82
Not located	10
Pending	5
Suspects	50
Infected	0
Not infected	31
Not located	3
Pending	3
Epidemiologically treated	118

force enlisted personnel; one fairly prominent businessman was involved. At least 60 per cent were in a lower socio-economic class. There were 38 Negroes and 11 Caucasians.

Five of the active cases were admitted homosexuals and contact interviewing revealed a very active homosexual group. This group was found to be very promiscuous and very reluctant to name other members. However, with persistence and a demonstration that the information would be confidential they were cooperative. Much of this cooperation was due to the skill of the field investigator. The homosexual ring had a high rate of reinfection and I understand that several have been reinfected so far this year (1967).

About 30 per cent of the cases were referred to the health department clinic by private physicians. Because of an active program it is estimated that 60 to 70 per cent of the infectious stages of syphilis, seen by private physicians in the Wichita area, are reported.

This was evident in this outbreak. While no month was free of a case, they were held to a minimum, and by January 1967 no new cases were found. The time involved in interviewing and a shortage of field workers prevented the immediate halting of the epidemic. But the reservoir was kept from expanding. A large file was accumulated and will make control of syphilis in this area easier and more effective.

Control Measures That Must Be Taken

In 1962 the Surgeon General of the Public Health Service organized a task force to study the problem of syphilis and to suggest some control measures.

They made the following recommendations and set 1972 as the target date for the eradication of syphilis.

1. Better cooperation between private physicians and the public health department. This was to include at least two letters a year and a visit to the physician's office, e.g. every physician in private practice, at least once a year. Implementing this is proving difficult and in 1965 only one fourth of these visits were made. More active communication by mail is taking place. The effectiveness of this measure cannot be evaluated now.

2. The reporting of all positive serologies by all laboratories. Hospitals performed 17,000,000 serologies in 1962. In that same year private laboratories performed 15,000,000. It is estimated that about 700,000 of these were positive but not reported. It is suggested that legislation be passed to require that positive serologies be reported. Several states have passed such laws. The practice of requiring hospitals to make a serology part of the routine admission before they can be accredited should be reinstituted. This requirement was discontinued in 1954.

3. Intensified case interview and contact investigation. This necessitates continued or increased funds and training more qualified field investigators. The present budget of the Venereal Disease Branch is just over \$10,000,000 a year. I could find no estimate of how much will be needed, but most agree that this figure is too low.

4. The establishment of an adequate education program. The importance of this is pointed out by a recent article in the *AMA Newsletter*. In response to the Syphilis Eradication Program, Los Angeles began VD education in 1963. Since then cases have dropped 58 per cent. In nearby Long Beach and Pasadena, which do not have such a program, teenage syphilis rose by 500 per cent during the same period. Education was probably not the only factor, but this is ample proof that awareness of the problem is a vital step.

5. Formation of a behavioral science division to try and determine why people contact the disease. I would expand this to include the study of the deep-rooted shame which the disease carries with it. If we could answer this question there would be a base upon which to build a better public information and education program.

In addition to these, I would add that our medical students and house staff should be given better instruction in clinical and epidemiological syphilis. If nothing else they should be made aware of the seriousness of the problem.

Discussion

I think Dr. Brown has summed up the whole

story in the following quote, "The disease is not food, air, water or insect borne, and there is no extra-human reservoir of infection. In fact almost the only way for a human being to contact it is through close, intimate relationship with someone who has the disease in an infectious stage, and that stage is rather a brief segment of the entire span of infection."

"In its infectious stage, the disease is easy to detect and diagnose and in terms of therapy is now among the easiest of diseases to cure."

Medical science has completely outlined the natural history of syphilis, developed over 50 serological tests to detect it, and provided a safe, completely effective cure. Local, state and federal governments have established agencies capable of handling the epidemiology of the disease. Only ignorance and apathy, both lay and professional, stand in the way of eradication.

The private physician has the responsibility to diagnose and treat the disease. Once it is reported, the various public health agencies must do adequate contact interviewing and tracing. Medical educators need to train future physicians in all aspects of venereal disease. Public schools must impress upon teen-agers the danger of the infection and exactly how easily it can be passed on. It is everyone's obligation to think of syphilis as an intolerable and expensive affliction.

If the measures outlined can be implemented and a new state of mind brought about, then a medical student of the next generation can aptly say, "Why learn anything about syphilis? You'll never see a case of that if you practice a hundred years."

Summary

A brief history of the disease is presented. It is pointed out that the decline after World War II was not real but reflected a shift in treatment from the public clinic to the private physician's office and that the majority of the physicians were not reporting the disease. The epidemiology is discussed with emphasis on the importance of contacts and their tracing. The recommendations of the Surgeon General's task force are reviewed.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

Most children who suffer with learning disabilities have an average or above-average IQ, but they usually have poor eye-hand coordination and a poor body image. Help with their physical coordination seems also to help with thinking in sequence, a necessary process for learning.

Cancer Page

Patient History:

The patient was an 83-year-old female. She was complaining of a "gathering" in the mid-portion of an old, right, upper rectus abdominal scar. She had undergone cholecystostomy 20 years previously. At that time, she was told that she was too ill to withstand cholecystectomy. About three months prior to admission, the old incision became hard and red and tender in its mid-portion, and subsequently drained purulent-appearing material. She had had much right subcostal pain and tenderness since. Abdominal exploration was undertaken, and the patient was found to have an extensive carcinoma of the gallbladder, which extended into the liver, the porta hepatis and the duodenum. Removal was not possible and palliative gastrojejunostomy was performed.

Comment:

It is true that cholecystostomy is occasionally indicated. It should be followed by elective cholecystectomy at a later date. Cancer of the gallbladder is nearly always found in a diseased gallbladder which contains stones. While proof is not complete, it seems definite that chronic inflammatory disease of the gallbladder with the associated stones, are in some way fertile soil for carcinogenesis. In this patient, early removal of the gallbladder would have spared her the risk.

—The Committee for Control of Cancer

The President's Message

It has been stated that physicians have become the whipping boys of our time, not only by criticism from outside of the profession but with an amazing masochistic self-criticism of our present system of medical care by many physicians within our ranks.

Our American forefathers' primary concerns for survival, including adequate food and housing, have been largely met and our citizens now can dwell more pointedly on the desire for good health and long survival. These latter concerns are placed on the doorstep of the physician. Even the ingeniously labeled Icarogenic ailments are forwarded to us for solution. Icarus was the mythical figure whose father glued wings on him so that he might escape from a Labyrinth with the admonition that he must not fly too close to the sun, yet approach the sun he did. His wings became unglued in the heat of the sun and he fell to his death in the ocean below. We are asked to solve problems which arise from patients' self-neglect; the Icaritic refusal of thousands of mothers to get care before labor; the refusal of Americans to follow a proper diet; to avoid alcohol, tobacco and a sedentary life. We somehow seem implicated in the high rate of deaths from automobiles and the pollution of air and water that are produced by our affluent society.

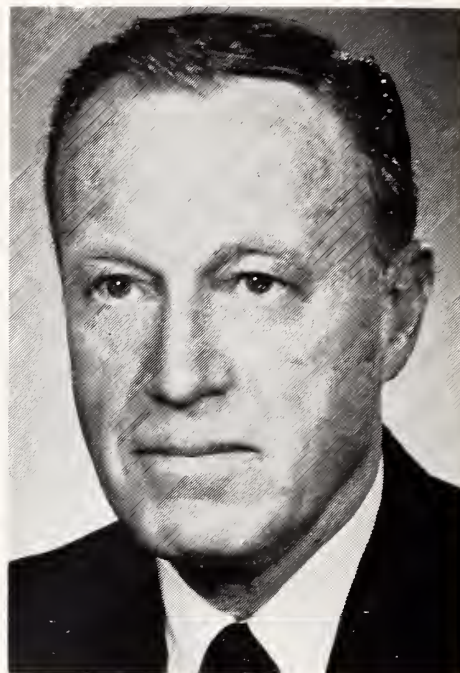
More than just preventing disease and improving our treatment regimes, we are told that physicians must be community-minded, be active in the legislative arena, and help advise local health planning groups. We are urged to take postgraduate refresher courses necessitating the transfer of our heavy patient loads to our already overtaxed colleagues. Finally, we must be model husbands and fathers.

The criticisms of our present system, or non-system as it has been labeled, do not generally come from physicians in the broad specialties rendering direct patient care. It is true these doctors have little time for meditation with their twelve-hour working days; but more significantly, they are already doing what they feel is most important as they serve their individual patients to the limit of their capabilities.

When I attended medical school in the 1930's, we were impressed with the virtue of keeping out of the public eye. The less a physician's non-medical opinions and actions were apparent, the more he conformed to the image of a respected dedicated physician.

How much have times changed in the thirty years since my indoctrination? Just last month a medical professor whom I admire told me the desirable attributes of prospective medical students were "capacity for learning; level of performance in the past; and humanitarian motivations." So, even today, we are not evaluating a medical school candidate's ability as an orator, sociologist, or as a political scientist. Goodness knows, it's hard enough to find the time-honored attributes.

The average highly regarded practitioner is not always influential in the usual sense of the word, nor is he always an articulate community leader. The type of a physician who is sought out by other physicians when



they are ill was well described by Dr. P. J. Steincrohn as follows—"One of the most popular and respected physicians I have ever met was an unprepossessing little man about five feet, five inches tall. He had a pock-marked face and was slightly crosseyed. He dressed in the same old tweed suit for years. His office, although fully equipped with the latest diagnostic instruments, was a little 'hole in the wall' on a side street. He was able. He was sincere. He was sympathetic and unhurried and he was natural. You could take your troubles to him and know that here was a man who 'cared,' and caring, he would do his best to help."

I do believe we should be active in medical and non-medical community and national activities. I believe we should improve our present patterns of patient care by involvement in local planning groups. I do believe physicians should regularly take postgraduate refresher courses.

I just as strongly believe that our first obligation is to our distressed patients and I have only admiration for the overworked physicians who are devoting their entire energies to the counsel of each patient as an individual when they examine him in their office or stand by his hospital bed.

J. S. Morgan

President



Editorial COMMENT

Kansas State University has received federal authorization and money to train women as homemakers. The object is to give a brief, carefully designed period of training to women, preferably over 45 years of age, which will enable them to return to their own community and become employed in a field of needed service.

A homemaker is more than a housekeeper. Besides the usual housekeeping duties, the homemaker may prepare meals and render personal care to the family. She will be certified to deal with actual home management. It is expected, when more homemakers have completed their training, they may be employed—perhaps through a local welfare department, a local public health department or otherwise—to assist families during a brief period of crisis or stress. The existence of homemaker service in a community may enable a physician to release patients from a hospital at an early date. It may postpone and prevent an individual from moving to a nursing care home. It could serve to hold a family together while the mother is in a hospital.

This is a new project. Kansas State University is one of seven schools in the country that has been selected to train homemakers. The course is conducted through the Department of Home Economics. It consists of a four-week period during which time the student is paid all expenses and a subsistence allowance. Upon successfully completing the course, the woman is certified as being competent to perform a series of listed services within a home.

The purpose in announcing this program is to invite physicians to recommend this training program to patients whose families are grown and who are looking for an opportunity for employment in an area of real service.

Any woman desiring to receive this training at no cost should inquire at the local employment office or write, Homemaker Service Demonstration Project, Family Economics Department, Justin Hall, Kansas State University, Manhattan, Kansas 66502.

Homemaker Service

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

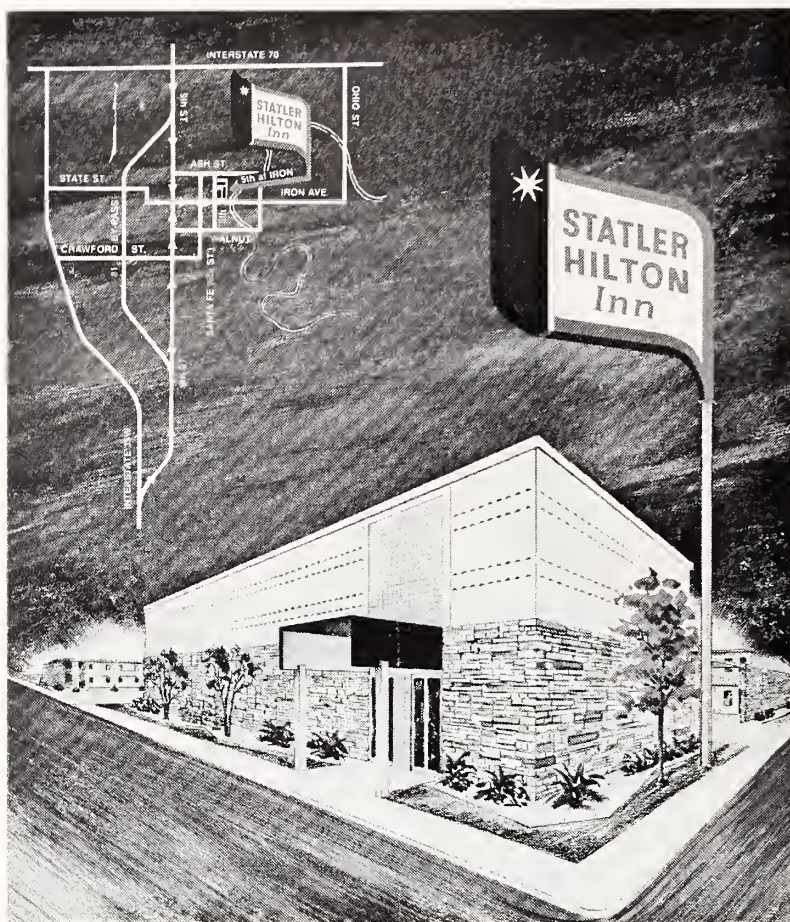
C. Alton Barnhill, M.D.
The Menninger Foundation
Topeka, Kansas 66601

Robert E. Linden, M.D.
1812 Lincoln
Topeka, Kansas 66604

Don R. Bautts, M.D.
3401 Harrison
Topeka, Kansas 66611

Edward G. Mehrhof, M.D.
The Menninger Foundation
Topeka, Kansas 66601

Robert M. Dickerson, M.D.
P.O. Box 327
Lakin, Kansas 67860



KMS
Annual Session
May 4-7, 1969

Statler-Hilton Inn
5th & Iron Streets
Salina

SUNDAY, MAY 4

3.00 p.m. *House of Delegates*
Evening *Salina Country Club facilities available*

MONDAY, MAY 5

8:00 a.m. *Reference Committees*
10:30 a.m. *Sports Day*
Evening *"Highlights Review"—Salina Country Club*

TUESDAY, MAY 6

9:00 a.m. *Scientific Meetings*
2:00 p.m. *Scientific Meetings*
Evening *President's Banquet—Salina Country Club*

WEDNESDAY, MAY 7

9:00 a.m. *House of Delegates*
Council Meeting

The Council

Report of Meeting Held January 12, 1969

A meeting of the Council was held on January 12, 1969, at the Ramada Inn in Topeka. This report is a summary of actions taken; the complete minutes are on file in the Executive Office.

Present were members of the voting Council: J. L. Morgan, President; D. L. Berger, F. T. Collins, C. C. Conard, R. F. Conard, Val Converse, C. L. Francisco, Richard Greer, R. H. Hill, R. W. Hughes, M. R. Knapp, C. M. Lessenden, J. J. Marchbanks, W. L. McAllaster, S. C. McCrae, R. R. Melton, J. C. Mitchell, L. R. Pyle, W. J. Reals, W. G. Rinehart, Alex Scott, E. T. Siler, B. G. Smith, Leland Speer, T. F. Taylor, F. P. Wolff, and E. D. Yoder. Non-voting physicians present were: C. V. Black, T. P. Butcher, Hugh Dierker, K. L. Graham, H. T. Gray, G. F. Gsell, G. L. Mowry, William Nice, L. W. Reynolds, J. H. Rohr, W. R. Roy, E. F. Steichen, and Jack Walker. Also present were Mr. Dwight Allen, Medical Society of Sedgwick County; Mr. Ray Selbach, Shawnee County Medical Society; Mr. Oliver E. Ebel and Mr. R. G. Swenson, Kansas Medical Society.

Dr. Morgan called the meeting to order and announced that 25 voting members were present. He stated that most of the subjects on the agenda were discussed at the Council meeting of October 6, 1968, and the Executive Committee meeting of December 16, 1968.

At the Council meeting in October it was suggested that a committee under the Commission for Society Organization explore a members-at-large society. A motion was made, seconded and carried that this study be continued for eventual recommendation to the House of Delegates.

Dr. Knapp reported that the revised format for the annual session had been accepted by the Medical Society of Sedgwick County for the annual session to be held in Wichita in 1970. The motion was then made, seconded and carried that the Council minutes of October 6, 1968, be approved.

Distributed to the Council was a resolution from the Committee on School Health, through the Commission for Education, which offers assistance to preserve the Department of Preventive Medicine and Community Health at the University of Kansas Medical Center. Dr. Speer stated that the medical school had not yet determined its position on this and Society action might be considered premature. A motion was made and seconded that this resolution be returned to the Commission for Education for further study. This motion carried.

A letter from Blue Cross requests that nominations

from the Society for appointments to the Blue Cross Board be received prior to April. Upon a motion made and seconded, the Council approved that county societies nominate physicians for possible appointment to the Blue Cross Board, and that the Executive Committee make the selections. This motion carried.

Dr. Collins presented for Council consideration a resolution on the new building. After discussion, the following resolution was adopted.

KANSAS MEDICAL SOCIETY BUILDING

WHEREAS, The present quarters of the Executive Office are of insufficient size and cannot reasonably be expanded; and

WHEREAS, Renting adequate space in a convenient location would annually cost \$10,000 to \$15,000; therefore, be it

Resolved, That the Council, acting upon authority vested in it by the By-Laws as adopted by the House of Delegates, authorize and direct the elected officers to purchase, in the name of this Society, the building from the Kansas Motor Carriers Association, located at the corner of 13th Street and Topeka Boulevard, known as 1300 Topeka Boulevard, in Topeka, at a cost of \$120,000; and, be it further

Resolved, That not to exceed \$50,000 from the reserves of the Society may be used toward the purchase of this building; and, be it further

Resolved, That each dues-paying member of this Society be assessed in 1969 the sum of \$50 to complete the cost.

Under its contract with the Department of Social Welfare, Blue Shield is paid 1.29 per cent of the claims processed for Title XIX; the cost of processing claims is 2.6 per cent. Blue Shield asks assistance from the Society in obtaining increased payment for services as fiscal intermediary.

A resolution that the Society "strongly recommends and supports Blue Cross and Blue Shield in their service as fiscal intermediary for Title XIX; that the Society equally supports efficient operation of all phases of the Title XIX program, and suggests that Blue Cross-Blue Shield negotiate with the State Board of Social Welfare for a revised compensation schedule" was made. A motion to approve this resolution was made, seconded and adopted.

The following items, largely from the minutes of the Executive Committee, were discussed.

1. The resolution adopted by the House of Dele-

gates to amend the Anatomical Gift Act relating to Blood.

2. To introduce a bill prepared by the University of Kansas Medical Center which would make it possible to perform organ transplants. The AMA statement on this subject was reviewed and the Council recommended the Executive Committee work with the medical center on the preparation of this legislation.

3. Abortions. The Council reviewed the resolution adopted by the House of Delegates and was told that the Judicial Council, which is preparing a revision of the criminal code, has adopted the Kansas Medical Society concept on abortions.

4. Coroners. Dr. Rinehart advised that the coroners had previously submitted to the Society their request to include an increase in payment for each coroner's case to \$25. A motion that this be approved by the Society was seconded and adopted.

Dr. Black requested each councilor assist in obtaining a physician from every Judicial District to serve as coroner. It was recommended that a letter be written to each councilor advising them of what they should do to assure that every district has a coroner.

5. Blood alcohol. The Council's previously adopted recommendation that .10 blood alcohol content be established as the indication of intoxication will be presented to the legislature.

6. It was noted that optometrists will attempt to revise their practice act to declare it legal for optometrists and ophthalmologists to share office space.

7. Independent Corrective Therapists and Medical Technologists will seek licensure. The Society draws a distinction between that and certification and recommends certification through the Healing Arts Board.

8. Certification of laboratories will be required federally unless it is accomplished by the states. The Council expressed its opinion that this should be done by the State of Kansas.

9. The Healing Arts Act. A series of amendments will be proposed in the Healing Arts Act. Recommendations by the Society have been previously reported.

A motion was made and seconded that the Society support the discontinuance of the Basic Science Board, provided the Healing Arts Board will require evidence of proficiency in the basic science subjects prior to issuing a license. This motion carried.

10. Booz-Allen-Hamilton report. Dr. Hugh Dierker commented upon the composition of the Board of Health, stating that more time is needed for planning and that the reorganization of the board would not be the total answer. A motion was made and seconded that the Society oppose the reduction of the medical complement of the Board of Health, and would not

oppose the addition of other professional or consumer members to the Board. This motion carried.

After the adoption of several amendments, the minutes of the Executive Committee were approved.

Dr. Knapp announced that the 5th District Court of Appeals had ruled that professional corporations are valid.

Dr. Hughes asked whether the recent letter from the Department of Social Welfare meant that Welfare would audit physicians' offices. Dr. Pyle expressed his opinion that this was only to advise physicians to keep adequate records in order to comply with federal requirements.

Dr. Taylor stated that many physicians were concerned that the Booz-Allen-Hamilton report recommended phasing out hospitals with fewer than 50 beds. He stated there was no recommendation for implementing this.

Leaders in Dermatology

(Continued from page 54)

courses which led, in 1871, to many reforms in medical education. These included a compulsory nine months' course, a graded curriculum extending over three years, and the requirement that each candidate pass a thorough examination in every department of medicine. In 1871, Dr. White was named the first full professor of dermatology at Harvard Medical School.

Previous volumes in the *Leaders of Dermatology* series honored Noah Worcester, Louis Adolphus Duhring and George Henry Fox.

Journal on Microfilm

Microfilmed copies of current as well as all back issues of the JOURNAL are available through University Microfilm Services, a subsidiary of Xerox Corporation. The 35 mm film fits all standard viewers and provides the JOURNAL in miniature at a savings on binding and storage costs. Write for information or send orders direct to University Microfilm Services, 300 North Zeeb Road, Ann Arbor, Michigan 48106.



In a December 23, 1968, newsletter, Kansas Blue Shield participating physicians were notified by Dr. James L. McGovern, president of the Blue Shield Executive Committee, that there were to be no Blue Shield rate increases for 1969. This was not the case, however, with Blue Shield's companion plan, Kansas Blue Cross, whose regular group rates increased approximately 35 per cent.

The rate increases for Kansas Blue Cross were necessitated by an almost \$4,000,000 drain on the Blue Cross reserve in 1968.

Although Blue Cross rate increases have been announced for 1969, it is necessary for Kansas Blue Cross to limit hospital payments to 96 per cent of charges during the first three months of 1969 to further protect Blue Cross reserves until the majority of subscribers have started paying the higher rates.

The pro rata action is taken in accordance with the contract that hospitals have with Blue Cross when there are unusual demands on Blue Cross reserves. Similar action had previously been taken in 1946 because of unanticipated increases in costs and services. The prorated amounts were paid to hospitals within one year.

The pro rata reduction clause in the Blue Cross agreement with member hospitals is similarly implied in the Blue Shield agreement with participating physicians; however, no Blue Shield reduction has been necessary in the past and none is anticipated in the future. Annual increases in charges by physicians for services to Blue Shield subscribers so far have been less than the general inflation in the economy, actually about three per cent.

Blue Cross rate increases for 1969 are attributed primarily to two factors:

1. Hospital charges during 1968 increased 16 per cent. Only a 12 per cent increase had been estimated.

2. Use of hospital services increased 2.5 per cent when no increase had been anticipated.

Both Kansas Blue Cross and Blue Shield are concerned about the rising costs of health care and the increase in subscribers' dues.

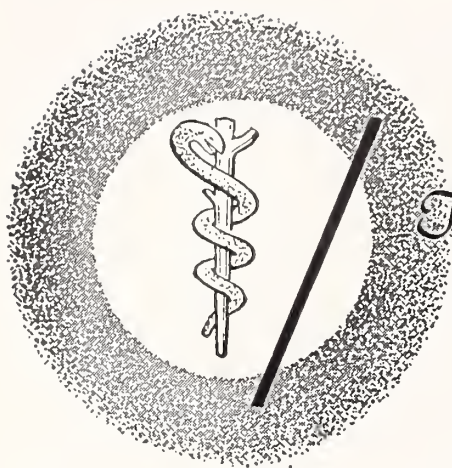
Currently, Blue Cross is working with hospitals to implement improved methods in delivering hospital services. In 1968, Kansas Blue Cross, in cooperation with the Kansas Hospital Association, launched a "work measurement" project in an effort to demonstrate what savings could be affected in hospital operation. This pilot project involved a detailed study and a recommendation for conservation of manpower in nine Kansas hospitals. Two of these hospitals have already implemented these changes.

Initial results indicated that changes made in the first hospital to initiate the program amount to an annual savings of more than \$42,000. A similar "work measurement" project will involve additional hospitals during 1969.

Kansas Blue Cross and the Kansas Hospital Association have also been studying computer systems to assist hospitals in improving efficiency and reducing costs. Several automated programs hold promise for better hospital use of a standardized computer system in accounting, payroll, medical records, and other areas. The automated system could produce patient bills, pay checks, patient records and the Blue Cross bill on punched "cards" ready for processing by the Blue Cross computer. One such pilot program was initiated in Kansas late in 1968. Due to the fact that the program was only recently implemented, overall results are not available for a valid comparison regarding manpower and money saved, etc.; however, early returns indicate positive results and promise for the future.

Blue Cross is also working with hospital leaders

(Continued on page 78)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

IT MOUNTS UP

There are times when it is almost as hard to get a doctor as it is a plumber, and as expensive, too.

Some years back when discussions on a federal health insurance plan were first held, it was pointed out that there was a shortage of doctors in the country. Nurses, lab technicians, too.

Then came the day of private health plans and shortages of medical personnel became more apparent. Medical and nursing schools tried desperately to train more persons to fill the gaps.

More recently, Congress put through Medicare in the face of these recognized shortages. Recently federal health promoters put in the Medicaid plan which provides in some area health care for all those who desired it.

In the past few years, more and more we have seen Uncle Sam getting into the health business, and from different angles. Medicare and Medicaid require more paper work on the part of doctors and hospitals.

Too, our benevolent government has also tightened its rules on hospital operations. More and more it is telling hospitals what treatment should be available, what records are needed to qualify for federal benefits, even what size rooms shall be.

Then, too, Uncle Sam started expanding his wage rules and applying minimums to hospitals.

Recently, howls have been heard about the higher costs of medical care, hospital care, medicines etc. We have even seen congressional inquiries in the areas of doctors' fees and hospital charges. These inquiries have largely been aimed at the medical profession, the hospitals and the producers of drugs and medicines.

Just the other day the Department of Labor reported living costs have gone up 71 per cent in the

past 21 years while doctors' fees have increased 107 per cent and hospital rates up 345 per cent.

You can try to put the blame anywhere you like, but in truth the only logical conclusion has to be that higher medical costs are one of those "fringe benefits" we have all received from Washington.

Whenever the government gets involved, it is certain to cost more.—*Ottawa Herald*, December 13, 1968.

COMPARE MEDICAL SERVICE

Since our federal government has been tinkering with our medical service, we are told frequently that socialist and communist countries are examples for the U. S. to emulate in the medical care field. And that they are far ahead of us in quantity medical service—medical care is free to all, etc.

What is ignored, of course, is the fact that a superior medical system is concerned more with quality than just quantity. The medical profession in this country, as a whole, is working hard to expand medical training and allied facilities, while at the same time striving to keep abreast of the social and economic problems in which medicine has become involved.

A group of 20 Kansas physicians has visited several Iron Curtain countries as members of a People-to-People tour. In the course of their travels, they saw only too clearly the price people must pay where the sole goal of state medicine is quantitative free care. As one physician pointed out, "On paper their system sounds excellent; free medical care for everyone, total care available in all parts of the country with

(Continued on page 78)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

FEBRUARY

- Feb. 21 *American College of Physicians (Kansas Regional), Wichita. Contact: Sloan J. Wilson, M.D., University of Kansas Medical Center, Kansas City, Kansas 66103.*

MARCH

- Mar. 13-15 *Current Problems in Electroencephalography: Advances Toward Their Solution*, course sponsored by the American Electroencephalographic Society and Baylor University College of Medicine, Houston. Contact: Peter Kellaway, M.D., Baylor University College of Medicine, Houston, Texas 77025.
- Mar. 17-19 The 25th anniversary of the American Academy of Allergy will be celebrated during its annual meeting at the Americana Hotel, Bal Harbour, Florida. For details of the program write the American Academy of Allergy, 756 N. Milwaukee St., Milwaukee, Wisconsin 53202.
- Mar. 21-22 *21st Annual Midwest Cancer Conference, Broadview Hotel, Wichita.*
- Apr. 13-18 Health Services Research Seminar, Department of Medical Care and Hospitals, Johns Hopkins University, Baltimore. Sponsored by the Division of Regional Medical Programs, National Center for Health Services Research and Development, and the Association of American Medical Colleges. Write: John W. Williamson, M.D., Seminar Coordinator, Dept. of Medical Care and Hospitals, The Johns Hopkins University, 550 N. Broadway, Room 207, Baltimore, Maryland 21205.

- Apr. 21-24 American Industrial Health Conference, for physicians and nurses, Shamrock Hilton, Houston, Texas. For more information contact the American Industrial Health Conference, 55 E. Washington St., Chicago 60602.

POSTGRADUATE EDUCATION

University of Kansas Medical Center:

- Mar. 10-12 *Pediatrics*
 Mar. 17-19 *Otorhinolaryngology*
 Mar. 24-26 *Surgery*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

- Mar. 10-12 *Diagnostic Ultrasound*

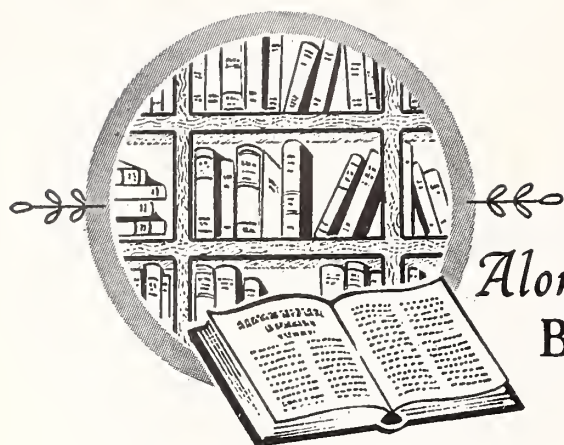
For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

- Mar. 5-6 *Advances in Hematology*
 Mar. 13-15 *Practical Management of Poisoning*
 Mar. 20-21 *Obstetrics and Gynecology*
 Mar. 27-28 *Advanced Medical Microbiology for Medical Technologists*

For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

- Feb. 21-22 *Postgraduate Continuation Course in Gastroenterology*, co-sponsored by the Institute of Gastroenterology, Good Samaritan Hospital and V. A. Hospital,
(Continued on page 78)



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Allport, Gordon Willard. The person in psychology; selected essay. Boston, Beacon Press, 1968.
- Andreoli, Kathleen G. Comprehensive cardiac care; a handbook for nurses and other paramedical personnel. St. Louis, C. V. Mosby, 1968.
- Bailey, Orville T. The central nervous system, some experimental models of neurological diseases. Baltimore, Williams & Wilkins, 1968.
- Björnber, Alf. Skin reactions to primary irritants in patients with hand eczema; Göteborg, Sweden, Oscar Isacson Tryckeri AB, 1968.
- Bock, Richard Darrell, The measurement and prediction of judgment and choice. San Francisco, Holden-Day, 1968.
- Brammer, Lawrence Martin. Therapeutic psychology; fundamentals of actualization counseling and psychotherapy. 2d ed. Englewood Cliffs, New Jersey, Prentice-Hall, 1968.
- Bukantz, Samuel C. The Stevens-Johnson Syndrome. Chicago, Year Book Medical Publishers, Inc., 1968.
- Burch, George E. Heart muscle disease. Chicago, Year Book Medical Publishers, Inc., 1968.
- Cameron, Donald Ewen, Psychotherapy in action. New York, Grune & Stratton, 1968.
- Carlson, Dosia. The unbroken vigil; reflections on intensive care. Richmond, Virginia, John Knox Press, 1968.
- Conant, Ralph Wendell. The politics of community health. Washington, Public Affairs Press, 1968.
- Commerce Clearing House. Complete guide to medicare: law, regulations, explanation. Chicago, 1968.
- Cowdry, Edward Vincent. Etiology and prevention of cancer in man. New York, Appleton-Century-Crofts, 1968.
- Croizier, Ralph C. Traditional medicine in modern China: science, nationalism, and the tensions of cultural change. Cambridge, Harvard University Press, 1968.
- Dedrick, Robert L., Kenneth B. Bischoff, and Edward F. Leonard, editors. The artificial kidney. New York, American Institute of Chemical Engineers, 1968.
- Field, Minna. Aging with honor and dignity. Springfield, Illinois, Charles C Thomas, 1968.
- Fisher, Leonard Everett. The doctors. New York, Watts, 1968.
- Flatt, Adrian Ede. The care of the rheumatoid hand. 2d ed. St. Louis, C. V. Mosby, 1968.
- Grady, George F. The prevention of (viral) hepatitis. Chicago, Year Book Medical Publishers, Inc., 1968.
- Harrison, M. Spencer. Meniere's disease, mechanism and management. Springfield, Illinois, Charles C Thomas, 1968.
- Hilgard, Ernest Ropiequet. The experience of hypnosis. New York, Harcourt, Brace & World, 1968.
- Hoffer, Abram. New hope for alcoholics. New Hyde Park, New York University, 1968.
- Huffman, John William. The gynecology of childhood and adolescence. Philadelphia, W. B. Saunders, 1968.
- Jacobs, Melville L. Malignant lymphomas and their management. New York, Springer-Verlag, 1968.
- Johnson, H. Daintree. The cardia and hiatus hernia. London, Heinemann, 1968.
- Johnson, John. Disorders of sexual potency in the male. Oxford, New York, Pergamon Press, 1968.
- Kahn, Donald R. Clinical aspects of operable heart disease. New York, Appleton-Century-Crofts, 1968.
- Lindesmith, Alfred Ray. Addiction and opiates. Chicago, Aldine Publishing Co., 1968.
- Meyler, L., ed. Drug-induced diseases. Amsterdam, New York, Excerpta Medica Foundation, 1968.
- Montgomery, Max M. Less common types of arthritis. Chicago, Year Book Medical Publishers, 1968.
- Owen, Samuel Griffith. Essentials of cardiology. 2d ed. Philadelphia, J. B. Lippincott, 1968.

(Continued on page 78)



THE CARE OF THE RHEUMATOID HAND (2nd Edition), by Adrian Flatt. C. V. Mosby Company, St. Louis, 1968. 234 pages, illustrated. \$14.00.

For the orthopedic surgeon and the hand surgeon, this monograph is an excellent and well documented text on care of the rheumatoid hand. The contents include the pathology of soft tissue disease involving the carpal joints, the individual digits and the thumb. The particularly outstanding contribution of the author is the surgical approach to rehabilitating the rheumatoid hand. Flatt not only describes his own preferred operative methods in detail but includes the techniques of other hand surgeons which have proved successful. He stresses continually the recognition of the early rheumatoid and the performance of early synovectomy as a prophylactic measure. With an abundance of sketches and photographs Adrian Flatt has made a complete book on the rheumatoid hand and a constant reference for the surgeon.—*H.G.K.*

DYSLEXIA: DIAGNOSIS AND TREATMENT OF READING DISORDERS, by Arthur H. Keeney and Virginia T. Keeney. C. V. Mosby Company, St. Louis, 1968. 182 pages, illustrated. \$12.00.

This volume is the product of a conference on dyslexia. Since it is a collection of the studies of many experts, there is a healthy difference of opinions. One is impressed, however, with the fact that this is a complex problem deserving a team approach and effort.

The material is particularly useful in presenting a practical classification of primary developmental dyslexia and the secondary type. In the latter, the reading difficulty is secondary to other pathology or

problem such as encephalopathy, emotional disturbance, motivation, or deprivation.

An adequate discussion of the various tests which are most useful in diagnosis is presented. This is in turn tied in with the early recognition of reading problems and techniques in therapy.

The material (Chapter 10) by Herman Goldberg, M.D. on *Vision, Perception, and Related Facts in Dyslexia* is excellent. This offers much needed information about reading and vision which would be helpful to anyone handling reading problems. The questions of dominance and laterality are also discussed.

In summary, the physician, or any person who deals with "reading problems" would find this book useful and the material presented provocative.—*H.P.J.*

SURGICAL PATHOLOGY (4th Edition), by Lauren V. Ackerman in collaboration with Harry R. Butcher, Jr. C. V. Mosby Company, St. Louis, 1968. 1,140 pages, illustrated. \$27.50.

Once again, the two physician authors, Ackerman and Butcher, have revised and up-dated an excellent text in surgical pathology originally published in 1953. The work then, and is now, a supplement to the reader's knowledge of general pathology, dealing with primarily common rather than rare lesions. *Surgical Pathology* can be considered a modern text for students as well as for the pathologist, internist, surgeon and radiologist. Gross pathology has been correlated with clinical findings in narration and pictures.

The original edition describes the surgical pathology of major systems, organs, bones, and tissues of the body. Although Ackerman and Butcher wrote a majority of the chapters, several physicians com-

pleted chapters in their respective fields, including dermatoses, tumors, the central nervous system, and eyes and ocular adnexa.

In this new edition, electron microscopy is used as a tool for ideas on possible diagnoses, and in some instances, an exact diagnosis. New developments and recent medical and surgical knowledge has been applied in revised chapters on the skin, eyes, and ultrastructure and surgical pathology.

The author and his collaborator have again proven the value of a work which has become a modern classic on surgical pathology, one which includes a sound, readable approach to clinicopathologic correlation.—*W.J.R.*

Blue Shield

(Continued from page 73)

in community planning committees to insure an effective expansion of hospital facilities that balances future needs with economic considerations.

Kansas Blue Shield, on the other hand, is working with physicians in an effort to improve utilization of inpatient hospital services. As an example, Experiment 68 was offered to a control group of some 12,500 Blue Cross and Blue Shield subscribers in Sedgwick County from February 1 through September 30, 1968. The purpose of Experiment 68 was to conserve the use of inpatient facilities by providing payment for covered services on an outpatient basis which normally would only be covered when the patient was hospitalized. The experience of the Blue Cross and Blue Shield groups enrolled in Experiment 68 is to be measured against that of groups who were not issued the special "outpatient benefits" of Experiment 68. Data secured from the experiment is currently under study to evaluate its effect on hospital utilization during the time period the outpatient benefits were offered.

It can be anticipated that during 1969 Blue Shield will work even more closely with Kansas physicians to gain their support in utilization review activities and in voluntary health care planning on a regional basis.

Announcements

(Continued from page 75)

Phoenix, Arizona. The course will be held at the Del Webb TowneHouse. For further information and registration forms contact: David C. H. Sun, M.D., Good Samaritan Hospital, Phoenix 85002.

Kansas Press

(Continued from page 74)

outpatient clinics in every district. . . . We visited some of these clinics and . . . found . . . not a single piece of modern specialty equipment." In Russia, the doctors found medical care was approximately 25 years behind the United States in quality offered to the average individual. Again quoting one of the doctors: "We were informed by one of the men in one of our embassies that the quality of care available to the average citizen was indeed deplorable and many citizens suffered in silence rather than subject themselves to the quality of treatment offered."

There is more to good medical care than quantity and in terms of quality the U. S. medical system has no superior. Even when a politician gets sick, he is the first to admit this—and seeks our best medical specialists rather than rely on the treatment and advice of those who advocate socialized medicine.—*Atchison Daily Globe*, December 13, 1968.

Bookshelf

(Continued from page 76)

- Pollak, Kurt. The healers; the doctor, then and now. London, Edinburgh. Nelson, 1968.
- Powers, Grady Pat. New outlooks in psychology. New York, Philosophical Library, 1968.
- Resnik, H. L. P. Suicidal behaviors; diagnosis and management. Boston, Little, Brown, 1968.
- Robb, George Douglas. Medical odyssey. Auckland, London, Collins, 1967.
- Rubin, Philip. Solitary metastases. Springfield, Illinois, Charles C Thomas, 1968.
- Salzman, Leon. The obsessive personality; origins, dynamics, and therapy. New York, Science House, 1968.
- Storr, Anthony. Human aggression. New York, Atheneum, 1968.
- The best of law and medicine, '66-'68. Chicago, American Medical Association, 1968.
- The principles and practice of medicine. 17th ed. New York, Appleton-Century-Crofts, 1968.
- Woodruff, A. W. A synopsis of infectious and tropical diseases. Bristol, John Wright, 1968.

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1969

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Disease Prevention & Control—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in November 1968 and 1967

<i>Diseases</i>	<i>November</i>		<i>5-Year</i>	<i>January-November Inclusive</i>		<i>5-Year</i>
	<i>1968</i>	<i>1967</i>	<i>Median</i> <i>1964-1968</i>	<i>1968</i>	<i>1967</i>	<i>Median</i> <i>1964-1968</i>
Amebiasis	1	—	1	12	14	13
Aseptic meningitis	—	—	—	6	7	7
Brucellosis	—	—	—	2	—	4
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	—	2	13	20	42
Encephalitis, post-infect.	—	—	*	9	2	*
Gonorrhea	405	290	290	4,190	3,622	2,916
Hepatitis, infectious	41	15	27	381	195	381
Measles (Rubeola)	—	*	*	9	*	*
Meningococcal meningitis	2	—	2	28	11	15
Mumps	41	*	*	754	*	*
Pertussis	—	8	—	4	22	15
Poliomyelitis	—	—	—	—	2	—
Rheumatic fever	—	—	—	3	3	3
Rubella (German Measles)	6	*	*	125	*	*
Salmonellosis	21	10	18	272	192	271
Scarlet fever	5	3	14	36	64	85
Shigellosis	9	379	9	90	426	118
Streptococcal infections	621	135	247	2,477	2,558	2,477
Syphilis	154	77	101	1,267	1,123	1,123
Tinea capitis	6	6	6	49	54	59
Tuberculosis	15	20	18	213	212	235
Tularemia	—	—	—	5	11	5
Typhoid fever	2	—	—	4	2	3

* Statistics not available.

CURRENT RECOMMENDATIONS FOR USE
OF MUMPS VIRUS VACCINE, LIVE

The Public Health Service Advisory Committee on Immunization Practices meeting on October 9, 1968, issued the following recommendation on use of attenuated mumps virus vaccine in public health and preventive medical programs, a revision of their initial recommendation, published in December 1967:

“Live mumps vaccine may be used at any age from 12 months. It should not be administered to children less than 12 months old because of possible persistence of interfering maternal antibody. The vaccine is of particular value in children approaching puberty, adolescents, and adults, especially males, who have not had mumps parotitis, either unilateral or bilateral. . . .” (*Morbidity and Mortality Weekly Report*, 17:419, November 9, 1968. National Communicable Disease Center, U. S. Dept. of Health, Education and Welfare.)

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R. RUSSELL CAVE, M.D.

Dr. Russell Cave, retired Manhattan physician, died on October 30, 1968, at the Leonardville Nursing Home. He was 81 years old.

Dr. Cave was born at Bird City, Kansas, on January 9, 1887. After graduating from the Kansas City Medical College in 1912, he began his practice in Manhattan, in association with his father. He served in the U. S. Medical Corps with the British Army in France and Belgium during Word War I, returning to Manhattan to resume his practice after his discharge. He retired in 1963.

Dr. Cave is survived by his wife and a sister. Memorials may be made to St. Paul's Episcopal Church, Manhattan.

LEO K. CRUMPACKER, M.D.

Dr. Leo Crumpacker, 62, Wichita physician, died on December 13, 1968.

He was born at Grenola, Kansas, on May 10, 1906, and received his medical degree from Northwestern University Medical School in 1935. Following his internship and residency in internal medicine at Evanston (Illinois) Hospital, he received a Fellowship in Surgery at the Mayo Clinic. He began his practice in surgery in Wichita in 1942 and continued practicing until his death.

Dr. Crumpacker is survived by his wife and family. A memorial has been established with the Sedgwick County Heart Association.

WILLIAM V. HARTMAN, M.D.

Dr. William V. Hartman, Pittsburg, died on December 24, 1968, at the age of 86.

Born at Taberville, Missouri, on December 23, 1882, Dr. Hartman received his doctor of medicine degree from Tulane University School of Medicine in 1912. He practiced medicine in Pittsburg for 45 years, retiring in 1957. After his retirement, he served as physician for the Peabody Coal Company in St. Louis for several years, then returned to Pittsburg after retiring from that position. He served in the Army Medical Corps during World War I, and was a member of various civic and medical organizations.

Surviving Dr. Hartman is his son.

RAYMOND G. HOUSE, M.D.

Dr. Raymond G. House, 82, of Wichita, died in an automobile accident on December 1, 1968.

Dr. House was born at Douglas, Kansas, on September 27, 1886. He obtained his medical education at University Medical College, Kansas City, Missouri, graduating in 1911. After practicing in the Andover community for a number of years, Dr. House established his practice in dermatology in Wichita in 1946. He served as game physician for local boxing and wrestling bouts and hockey matches.

DALE U. LOYD, M.D.

Dr. Dale Loyd, 53, Wichita died on December 12, 1968.

Dr. Loyd was born on November 10, 1915, at Hill City, Kansas. He attended Fort Hays Kansas State College and received his medical degree from the University of Kansas School of Medicine in 1941. After serving with the Army Medical Corps during World War II, he moved to Wichita and began his general practice there in 1946. After a residency in anesthesiology at the University of Pennsylvania from 1949 to 1951, he returned to Wichita and continued his practice of anesthesiology until his death.

He is survived by his wife and three children. A memorial has been established with the University of Kansas Endowment Association.

EMMET N. McCUSKER, M.D.

Dr. Emmet McCusker died at his home in Halstead on December 15, 1968. He was 51 years old.

He was born December 19, 1916, in Bismarck, North Dakota. He received his medical degree from New York Medical College in 1945. Dr. McCusker was a radiologist and had been associated with the Hertzler Clinic and Halstead Hospital since moving to Halstead from Santa Maria, California, twelve years ago.

Dr. McCusker is survived by his wife and seven children. A memorial in his name has been established for the benefit of the Halstead Public Library, in care of the Halstead Bank.

The Kansas Medical Society—1968-1969

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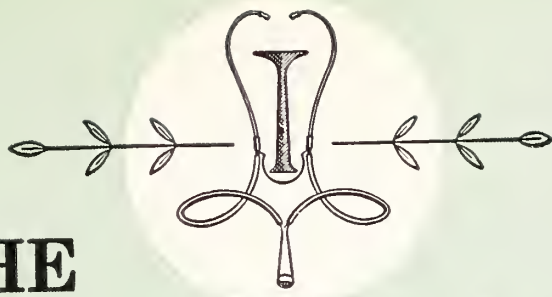
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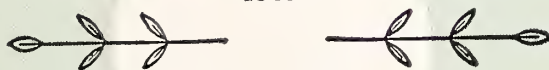
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NO III

1969

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The JOURNAL of the KANSAS MEDICAL SOCIETY

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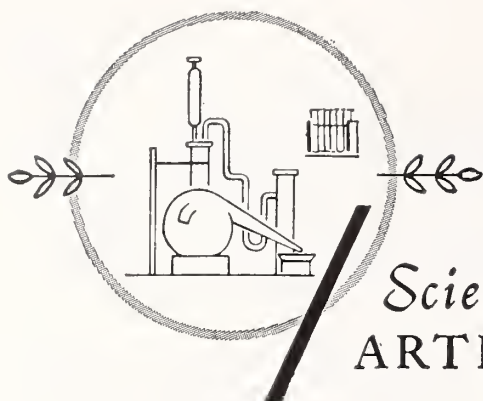
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References:

- (1) Siver, R. H.: CMD, 21:109, September 1954.
- (2) Frykman, H. H.: Minn. Med., 38:19-27, January 1955.
- (3) McGivney, J.: Tex. State Jour. Med., 51:16-18, January 1955.
- (4) Quehl, T. M.: Jour. of Florida Acad. Gen. Prac., 15:15-16, October 1965.
- (5) Weekes, D. J.: N.Y. State Jour. Med., 58:2672-2673, August 1958.
- (6) Weekes, D. J.: EENT Digest, 25:47-59, December 1963.
- (7) Abbott, P. L.: Jour. Oral Surg., Anes., & Hosp. Dental Serv., 310-312, July 1961.
- (8) Rapoport, L. and Levine, W. I.: Oral Surg., Oral Med. & Oral Path., 20:591-593, November 1965.

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Twenty-Third
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Issue



Scientific ARTICLES

The Dean's Report

The University of Kansas Medical Center

GEORGE A. WOLF, JR., M.D.,* *Kansas City, Kansas*

LAST YEAR, I ATTEMPTED to bring us up to date by presenting certain facts about the University of Kansas Medical Center in the JOURNAL OF THE KANSAS MEDICAL SOCIETY, March 1968, pages 78 to 83, Volume LXIX, No. III. This year, I will focus on some areas of possible interest to you. The medical educational curriculum is being dealt with elsewhere in this issue.

Nursing Education

Under the leadership of Dr. Martha Pitel and her faculty, 73 LPN's, 157 Baccalaureate, and 25 Master's in Nursing are being educated and trained. In addition, Dr. Delp in the Department of Medicine, and others in Nursing Education and Nursing Service are collaborating in defining and putting into operation an expanded role for nurse clinicians in the ambulatory services of this medical center. Miss Lyla Niederbaumer is head of the Nursing Services operation of the medical center.

Our nursing faculty is cognizant of the fact that the nurse in the past was able to advance in her profession only by getting on the administrative ladder. They point to the concern of the nurse for certain aspects of patient care which the physician may not and possibly cannot deal with and to a need for specially prepared nurses in the community men-

tal health centers, ambulatory care settings, intensive care units, and in special areas such as coronary care, dialysis, etc. Hoping to reinstate the nurse in the role of direct provider of care to the patients, they are emphasizing the humanities, sciences, home care, public health nursing, and bedside nursing in the educational program. They attempt to reflect in the educational program the need for the professional nurse to make educated decisions concerning certain aspects of patient care in contrast simply to following orders. The decision-making role of the highly skilled nurse in the coronary care unit is an example familiar to all of us.

Again, the decision-making role of the nurse is being explored in an experimental model of interprofessional care in the Medical Outpatient Department.¹ In this department, nurses are seeing selected patients in a stable phase of illness with medical supervision, thus saving the physician's time and adding to the care of the patient. These new efforts may see the educated nurse return from administrative posts to direct patient care, but in a different role.

Graduate Education

Over the past decade or more, there has been a growth in the involvement of the University of Kansas Medical Center in the training of teachers of medicine. Effort has been concentrated at two levels; namely, the master's and Ph.D. programs in the ba-

* Dean and Provost, University of Kansas School of Medicine, Kansas City, Kansas.

sic sciences and the residency training programs in the medical and surgical specialties. In spite of these efforts a very small percentage of our alumni body is involved in teaching in medical schools.

In the clinical areas those with advanced training go into practice or some non-medical school teaching endeavor. This figure is probably 97 per cent or more. Although we have never studied the fate of our Ph.D. graduates, many go into commercial activities and other types of non-medical school teaching endeavors. Thus, Kansas in this regard is a debtor state. Most of our own graduates who have returned to our teaching staff have had advanced training elsewhere.

Only about a quarter of the medical schools in the country produce a significant number of teachers of medicine. Undoubtedly, this is a much different picture than existed 50 years ago, although again, I know of no studies documenting this.

Rural Health Care

One of the most difficult problems facing the world of medicine today is providing medical care to those who live in remote areas. Remote may be defined as the Australian bush, the inner city, or rural USA. Although the problems in these areas are the same (availability of medical care), the methods of solution differ from place to place. A heart attack in New York City at 42nd Street and Broadway in a traffic jam can be quite remote from a hospital—equivalent perhaps to 50 miles on Route 70 in Kansas.

Unfortunately, the feeling exists in the state that the training of more general practitioners or family physicians will automatically solve the problem of rural health care. Those who are espousing family practice training are oriented to what they consider better medical care not just rural medical care. The argument between those who are for and against Boards of Family Practice are, in effect, unrelated to rural medical care. Those students who claim interest in family medicine do not necessarily plan to practice in rural towns. The issues have unfortunately become clouded and your medical school is being criticized but for the wrong reason. Let us briefly define the issues in family practice and then suggest solutions to the rural medical care problems.

Family Practice

As knowledge is accumulated in any field the limits of the human mind force specialism. There are theoretical and experimental physicists. There are civil, electrical, mechanical, and systems engineers. There are constitutional, tax, corporation, and other lawyers. Similarly, in medicine there are internists, surgeons, gynecologists, etc.

Those who espouse Family Practice have become concerned with the fragmentation of medical care of the individual by the proliferation of specialists in the solo practice system. Few individuals or families have coincident constitutional law, tax law, and corporation law problems. Yet individuals and families do have coincident medical, surgical, and gynecological problems. In our present system of solo practice the patient with inadequate knowledge of the subtle differences among medical specialists must make the choice of specialists. In the first place, he may not need services at the level of the individual specialist training or he may need more than one specialist.

There are two sides to the argument. One group feels the problem can be dealt with by organizational techniques such as regional health center or group practice, comparable to a law firm or an engineering firm. The other side takes the view that an individual physician can be trained who can be the first contact physician and guide the patient to appropriate specialists when needed. This group implies that medical care, being a most personal matter, can be of better quality if provided by an appropriately trained individual physician—a so-called family physician. The other side maintains that it is impossible to train adequately the proposed generalists or family physician and that quality care can be given only by well-trained and appropriately organized specialists.

As one can see, this argument has little to do with rural medical care, for all physicians—whether family practitioner or specialist—need access to sophisticated diagnostic and therapeutic facilities and specialists which are present in regions and in large cities.

The problem in rural medical care is one of access not only to a physician but to specialists and facilities. Access implies such things as time, convenience, and degree of need. Degree of need suggests fear on the part of the patient—or urgent physical need for care. Time relates to urgency of the physical situation, transportation facilities, and distance. Convenience can relate to an unavailable parking space, a rainy day, or physical infirmities. Survival in a severe head injury can be a function of the time it takes to get to the nearest neurosurgeon with a well-equipped and staffed operating room. On the other hand, convenience can relate to an elderly arthritic and a comforting house call by a physician.

Only the physician can decide on the basis of the evidence available that for which time, degree of need or convenience is most important. The consumer then decides what he will pay for through taxes or by other means. His decision should be based on facts.

The Booz, Allen, and Hamilton Report has recommended viewing the state as divided into regions rather than towns or counties. This makes sense because each region has different characteristics and different problems. The report has also suggested that an appropriate role for the University Medical Center is to study the health care situation in each region. This has been going on under the direction of Dr. Charles Lewis and will continue after he leaves for his new position at Harvard University.

The Kansas Medical Society has established a committee to explore and take action on these matters and initially is focusing on the provision of emergency care. They are looking at the problem of transportation and communication within the regions. This is an appropriate and laudable activity on the part of the state Society considering it is entirely a voluntary effort. Soon they will need funds and staff to pursue their goal. The University of Kansas Medical Center can aid by advice, research, and training. Implementation belongs to those involved in the provision of services.

Our close relationship with the Kansas Academy of General Practice and the Kansas Medical Society permits a dialogue concerning the family practice issue and the rural care issue to occur. They are both difficult problems but they are different problems. We in the profession should keep them separate in our minds because if they are confused in the minds of the consumer the roots of our existing free enterprise system will be destroyed. It does not take much imagination to foresee laws designed to force your medical school to train doctors to be forced to work in rural towns. Such a proposal might result in better funding for your medical school than it has now. Personally, however, I think the sons and daughters of Kansans should have the best possible

medical education available to them wherever they want to use it. The family practice argument is an entirely different matter and let's not confuse the two. If our sons and daughters want to be trained for family practice, they shall have it, but it is their decision as to whether they use their training in Kansas, on Broadway and Forty-Second Street or in the Australian bush.

Federal Influences

Willy Sutton once, when asked why he robbed banks, responded, "Because that is where the money is." Over the past 20 years the federal government has made money available for medical schools and most of this money has been in the form of research grants. Although the educational programs of many schools have been improved by the conduct of this federally supported research, some schools have been forced to lean too heavily on federal funds to the point where it has influenced their program. Fortunately, this has not been true at Kansas as compared to some other schools. However, with the federal government now getting into education and medical services, it is important that we in the medical school and in the profession make our own decisions and lend our efforts to dealing with the problems of Kansas in the ways we consider best for Kansas, its young people desiring an education, and its inhabitants. The opportunity to do local planning for health services and education is with us now. Let all of us involved with the health professions take advantage of this opportunity at once.

Reference

1. Nurse clinics and progressive ambulatory patient care. *N. Eng. J. of Med.* 277:1236-1241, December 7, 1967.



Gift of Life

Uniform Anatomical Gift Act Revisited Updating the Existing Act With Enabling Legislation for Organ Transplantation

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THE FOLLOWING PARAGRAPHS represent my recommendations for maintaining Kansas as the undisputed leader in the area of anatomical gifts and establishing the favorable legislation necessary to enable the University of Kansas Medical Center to continue its program of offering the patients of Kansas the newest types of therapy while also insuring an atmosphere most conducive to the development of techniques which, theoretical today, will be the standard of care tomorrow. These recommendations are being submitted to the current legislature.

On May 6, 1968, there appeared in the *Journal of the American Medical Association* an article authored by M. Martin Halley, M.D., J.D. and William T. Harvey, J.D., LL.M. entitled "Medical vs. Legal Definitions of Death." Later, July 1968, there appeared in the JOURNAL OF THE KANSAS MEDICAL SOCIETY an article by Dr. Halley discussing the Uniform Anatomical Gift Act. Kansas, at the time of publication of these two articles, was unique, standing alone; the only state with modern comprehensive organ donation laws. Only a year before, in 1967, the Kansas courts, in another monumental act, adopted a 1600 definition of death. Death was defined in the case of *United Trust vs Pyke*, 199 Kan. 1, 4, 427 P2d 67, 71 (1967). Even so, for its intended purpose, the definition was perhaps adequate and at the time of utterance did not appear to have special significance, for there was no question of whether or not death had occurred, but rather, definition of the sequence of death if they did not die simultaneously. Kansas became the only state with comprehensive enabling legislation for procuring organs for transplantation at nearly the same time case law was being handed down which has been interpreted as specifically precluding organ transplantation, at least where the donated organ was to be removed from the donor at the time of his death. The case-adopted definition of death is: "Death is the complete cessation of all vital functions without possibility of resuscitation." These occurrences joined together suggest that one can give

away his body or parts thereof, but if the donee be a transplanting surgeon who uses said organs for their intended purpose, then if one is successful in the transplantation, he risks a criminal charge. For by definition "death is the cessation of all vital functions without possibility of resuscitation." The existence of a resuscitated heart should be prima facie evidence that the donor was not dead until the operator excised the heart, thereby killing him.

The law is alleged to run 25 years behind the times, so the courts having adopted a definition of

Kansas has led in legislation relating to donation of organs, but deficiencies in the present law are preventing full development of transplantation facilities. The Uniform Anatomical Gift Act before the Legislature this year will correct these deficiencies and its passage is recommended.

death in 1967 (unless the Legislature acts to set the record straight), no organ transplantation should be anticipated in this state until 1993.

Senate bill 582 which became Chapter 63 of the Public Health Code, known as the Uniform Anatomical Gift Act, was introduced at the time of Blaiberg and was law before he left the hospital. Kansas was the only state having such legislation and actually the law was in effect in Kansas before the final form of the bill was adopted by its original authors.

We pray the Kansas legislature will continue its progressive thinking for the benefit of its citizens today. Kansans are afflicted with the same maladies as all other mankind and are entitled to treatment at home and not in some far off medical center.

The University of Kansas School of Medicine stands ready to treat these patients today and is already committed to these areas of medical treatment, having been engaged in extensive research in the area of organ transplantation. Today, organ transplanta-

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tion is technically possible at the medical school and is not performed because of legal restrictions.

For the above reason we are proposing certain changes in the laws of the state of Kansas. We are proposing that the first six sections of the Uniform Anatomical Gift Act be amended to be identical with the act as finally adopted by the Joint Commissioners on Uniform State Laws in July 1968. We are proposing that Section 7 of the act be amended to include a definition of death which is based on current scientific knowledge.

Death has been defined variously, by various persons, for various reasons, but apparently not ever really thought out and written down. Many persons today are fearful of the dangers of enumerating the criteria which establish death, or the absence of which establishes death. But, dangerous though it may be, it is for the physicians to set down the definition. This duty cannot be shirked nor abrogated. This is not a definition which society can decide upon, as I have heard said. Or if society is to decide, then we must realize that we are a part of society and that it is our obligation to others in our society to educate them so that they will have the knowledge which is currently ours. No longer can we permit all medical information to remain esoteric, for to do so is to allow others to potentially misuse this information to the detriment of all mankind. Physicians must assume their proper role as educators and community leaders in this area, just as they should in other areas. A physician should not need a lawyer to tell him when a patient is dead and even more important, he should not need one telling him when a patient is *not* dead.

Society does not expect this unpleasant decision to come from lawyers nor do they expect it from the clergy. We are the persons upon which the responsibility rests and I can say with assurance that no one else wants it. With equal assurance, I can tell you that if we do not take leadership in making this definition, then other less qualified but more aggressive and less sensitive groups will do it for us. Organized medicine has repeatedly found itself acting defensively after having failed to act or having acted negatively. Here in a seemingly small area, let us as a group act positively to obtain a definition under which we can live and work and at the same time elevate ourselves in the eyes of our fellow citizens by assuming the leadership in an area in which it is just that we should.

Chapter 63 of the Kansas Revised Statutes, as approved March 10, 1968, is the Kansas version of the Uniform Anatomical Gift Act, which was approved in its final form by the National Conference of Commissioners on Uniform State Laws on July 30, 1968.

In the period between Senate Bill No. 532's introduction early last year and July 30, 1968, when finally approved, certain refinements were accomplished by the original authors of the Uniform Anatomical Gift Act. These refinements resulted in subtle differences in some areas and major differences elsewhere, but most of the two bills remain the same.

I will list the differences between the Kansas Act as it now exists, which I will refer to as the "Kansas Act," and I will hereafter refer to the Uniform Anatomical Gift Act as the "Uniform Act." Where necessary, I will clarify the differences and the reasons why it is felt that the Uniform Act is more desirable than the Kansas Act.

The Act to be proposed to the Legislature contains no variances from the Uniform Act except in Section 7. The discussion and explanations will follow the format of the Kansas Act.

Section 1(a) of the Kansas Act defines Person as follows: "(a) 'Person' means individual, corporation, government or governmental subdivision or agency, business trust, estate, trust, partnership or association, or any other legal entity." This definition is the same as the Uniform Act Section 1(f).

Section 1(b) defines Body or part of body as: "(b) 'Body or part of body' includes organs, tissues, bones, blood and other body fluids in the body of the donor, and 'part' includes 'parts.'" The Uniform Act is the same, except that the Uniform Act specifically includes eyes. This is Section 1(e) in the Uniform Act.

Section 1(c) defines Licensed hospital as follows: "(c) 'Licensed hospital' includes any hospital licensed or approved by appropriate authorities under the laws of any state, and it also includes any hospital operated by the United States government although not required to be licensed under state laws." This is Section 1(d) in the Uniform Act and the definition is essentially the same in both acts.

Section 1(d) defines Licensed physician or surgeon as follows: "(d) 'Licensed physician or surgeon' means physician or surgeon licensed to practice under the laws of any state. 'Licensed technician' means a medical assistant licensed as such under the laws of any state." This is Section 1(g) in the Uniform Act. It differs from the Kansas Act in that the Uniform Act does not include licensed technician. I do not believe this to be a significant difference.

Section 1(e) defines Licensed bank or storage facility as follows: "(e) 'Licensed bank or storage facility' means the facility licensed or approved by appropriate authorities under the laws of any state." This is Section 1(a) in the Uniform Act and differs substantially from the Kansas definition. The Kansas Act Section 1(e) fails to define the purpose for

which the bank or storage facility is licensed. Section 1(a) of the Uniform Act eliminates this omission, and should, therefore, be adopted.

Section 1(f) defines State as follows: "(f) 'State' means any state, territory or possession of the United States, the District of Columbia or the Commonwealth of Puerto Rico." This is included in Section 1(h) of the Uniform Act which is more comprehensive. In the Uniform Act, "state" includes any state, district, commonwealth, territory or insular possession and any other area subject to the legislative authority of the United States of America.

The Kansas Act fails to define "decedent" which is defined in the Uniform Act Section 1(b) as follows: "(b) 'Decedent' means a deceased individual and includes a stillborn infant or fetus."

The Kansas Act also fails to define "donor" which is defined in Section 1(c) in the Uniform Act as follows: "(c) 'Donor' means an individual who makes a gift of all or part of his body."

Donor and decedent are key terms in this Act and because these terms are not necessarily synonymous, adequate definition is mandatory.

Section 2 of the Kansas Act describes persons who may execute an anatomical gift. Subsection (a) states, "Any individual who is competent to execute a will may give all or any part of his body for any one or more of the purposes specified in this act, the gift to take effect after death." The Kansas Act and the Uniform Act differ significantly in that the Uniform Act gives the right to execute an anatomical gift to any individual of sound mind and 18 years of age or more. The Kansas Act thereby, unnecessarily limits the spectrum of those who may give. No one who is not age 21 can make a will, sound mind or not. There is no valid reason why one 18 years of age should not be able to donate his body parts if he is of sound mind, whether or not he can make a will. It is also unfortunate that Section 2(a) of the Kansas Act limits those persons who may be donors by the clause "competent to make a will." The right to give one's own body should not be bound to an ancient and historically troublesome concept such as this. The problem of "competency to make a will" has been the cause of litigation since early Common Law days. It is not necessary to fetter the new concept of giving to one's fellow man with all of the old and inconclusive cases and laws which determine whether a person is or is not "competent to make a will." Instead of confusing the issue by relying on a definition which has created problems for centuries it would be better to establish a fresh definition with as few limitations as possible, and therefore as few chances for later lawsuits as possible. For the above reasons I

urge that the terminology of the Uniform Act Section 2(a) be adopted.

Section 2(b) empowers certain classes of persons, other than the decedent, to give all or part of the decedent's body, and also establishes the order of priority among these classes. Because of several serious variances between Section 2(b) of the Kansas Act, and Section 2(b) of the Uniform Act, I will quote both in their entirety before pointing out the problem areas.

KANSAS ACT

Section 2. (b) Unless he has knowledge that contrary directions have been given by the decedent, the following persons, in the order of priority stated, may give all or any part of a decedent's body for any one or more of the purposes specified in this act:

- (1) The spouse if one survives. If not,
- (2) an adult child,
- (3) either parent,
- (4) an adult brother or sister,
- (5) the guardian of the person of the decedent at the time of his death,
- (6) any other person or agency authorized or under obligation to dispose of the body.

If there is no surviving spouse and an adult child is not immediately available at the time of death, the gift may be made by either parent; if a parent is not immediately available it may be made by any adult brother or sister; but if the donee or his agent knows that there is controversy among the classes of relatives named with respect to making the gift, it shall not be accepted. The persons authorized by this subsection to make the gift may execute the document of gift either after death or immediately before death during a terminal illness. The decedent may be a minor or a stillborn infant.

UNIFORM ACT

Section 2. (b) Any of the following persons, in order of priority stated, when persons in prior classes are not available at the time of death, and in the absence of actual notice of contrary indications by the decedent, or actual notice of opposition by a member of the same or a prior class, may give all or any part of the decedent's body for any purposes specified in section 3:

- (1) the spouse,
- (2) an adult son or daughter,
- (3) either parent,
- (4) an adult brother or sister,
- (5) a guardian of the person of the decedent at the time of his death,
- (6) any other person authorized or under obligation to dispose of the body.

(c) If the donee has actual notice of contrary indications by the decedent, or that a gift by a member of a class is opposed by a member of the same or a prior class, the donee shall not accept the gift. The persons authorized by this subsection (b) may make the gift after death or immediately before death.

The Kansas Act leaves open to question whether authority is vested in a member of a more remote class if a prior class person is alive but not immediately available at the time of death. The Uniform Act corrects this deficiency.

It should also be pointed out that the Kansas Act utilizes the word "knowledge" while the Uniform Act refers to "actual notice." The apparently subtle difference between "knowledge" and "actual notice" is, in fact, profound. The term "knowledge" has escaped precise legal definition while the term "actual notice" is a "word of art" with defined legal significance.

Section 2(d) of the Uniform Act reads as follows: "(d) A gift of all or part of a body authorizes any examination necessary to assure medical acceptability of the gift for the purposes intended." The need for this authorization is to protect the potential recipient. The recipient is entitled to receive the best possible organ and it is only by thorough examination that one can be certain that the donee does not receive an organ which will only compound his problem. It would be most cruel to transplant an organ into a patient only to render him hopelessly ill from another disease transferred from the donor. For this reason, it is believed that Section 2(d) should be included in the Kansas Act.

The Kansas Act also has no counterpart in Section 2(e) in the Uniform Act. Section 2(e) in the Uniform Act reads as follows: "(e) The rights of the donee created by the gift are paramount to the rights of others except as provided by Section 7(d)." Section 7(d) provides provisions of this act are subject to the laws of this state prescribing powers and duties with respect to autopsies. For the sake of completeness, this Section 2(e) should be included in the Kansas Act.

Section 3 defines persons who may become donees and purposes for which anatomical gifts may be made: "The following persons are eligible to receive gifts of human bodies or parts thereof for the purpose as stated:

"(a) Any licensed hospital, surgeon or physician, for medical education, research, advancement of medical science, therapy or transplantation to individuals;

"(b) any medical school, college or university engaged in medical education or research for education, research or medical science purposes;

"(c) any person operating a licensed bank or storage facility for blood, arteries, eyes, or other human parts, for use in medical education, research, therapy or transplantation to individuals;

"(d) any specified donee, for therapy or transplantation needed by him."

The Uniform Act differs from the Kansas Act in two respects: (1) it more broadly defines who may become a donee and (2) the Uniform Act includes education, or dental science. It does seem just that the dental sciences should be included in the Uniform Act as to be adopted by the Kansas Act.

Section 4 of the Kansas Act defines the manner of executing anatomical gifts: "(a) A gift of all or part of the body for purposes of this act may be made by will, in which case the gift becomes effective immediately upon death of the testator without waiting for probate. If the will is not probated, or if it is declared invalid for testamentary purposes, the gift, to the extent that it has been acted upon in good faith, is nevertheless valid and effective." This is identical to Section 4(a) in the Uniform Act.

"(b) A gift of all or part of the body for purposes of this act may also be made by document other than a will. The document must be signed by the donor, in the presence of two (2) witnesses who shall in turn sign the document in his presence. If the donor cannot sign in person, the document may be signed for him at his direction and in his presence, and in the presence of two (2) witnesses who shall in turn sign the document in his presence. Delivery of the document of gift during the donor's lifetime is not necessary to make the gift valid. The document may consist of a properly executed card carried on the donor's person or in his immediate effects. The gift becomes effective immediately upon the death of the donor." This is essentially identical to Section 4(b) of the Uniform Act.

"(c) The gift may be made either to a named donee or without the naming of a donee. If the latter, the gift may be accepted by and utilized under the direction of the donor's attending physician at or following death. If the gift is made to a named donee who is not reasonably available at the time and place of death, and if the gift is evidenced by a properly executed card or other writing carried on the donor's person or in his immediate effects, the donor's attending physician at or following death may, in reliance upon the card of writing, accept and utilize the gift in his discretion as the agent of the donee. The agent possesses and may exercise all of the rights and is entitled to all of the immunities of the donee under this act." Section 4(c) of the Uniform Act is essentially the same as the Kansas Act.

Section 4(d) "The donor may designate in his will or other document of gift the surgeon, physician, or technician to carry out the appropriate procedures. In the absence of a designation, the donee or other person authorized to accept the gift may employ or authorize any licensed surgeon, physician, or technician for the purpose."

Section 4(e) "If the gift is made by a person designated in Section 2(b) of this act, it shall be executed by a document signed by the person authorized by that section and witnesses are not required."

Section 4(e) of the Uniform Act reads as follows: "Any gift by a person designated in Section 2(b) shall be made by a document signed by him, or made by his telegraphic, recorded telephonic or other recorded message." This sentence is much more broad and it seems to be much more desirable for it makes the broadest possible use of the manner of executing a gift.

Section 5 of the Kansas Act defines delivery to donee: "If the gift is made to a named donee, the will or other document, or an attested true copy thereof, may be delivered to him to expedite the appropriate procedures immediately after death, but such delivery is not necessary to validity of the gift. Upon request of any interested party on or after the donor's death, the person in possession must produce, for examination the will or other document of gift." Section 5 in the Uniform Act is essentially the same as the Kansas Act; it does have a desirable feature not included in the Kansas Act of allowing the will, card or other document or an executed copy thereof to be deposited in the hospital bank or storage facility, or registry office that accepts them for safekeeping or for facilitation of procedures after death.

Section 6, regarding revocation of the gift, reads as follows: "(a) If the document of gift has been delivered to a named donee, it may be revoked either (1) by the execution and delivery to the donee or his agent of a revocation in writing signed by the donor, or (2) by an oral statement of revocation witnessed by two persons, addressed and communicated to the donee or his agent, or (3) by a statement during a terminal illness addressed to the attending physician, and communicated to the donee, or his agent, or (4) by a card or writing, signed by the donee and carried on his person or in his immediate effects, revoking the gift." Now this quite obviously should read "by a card or writing signed by the *donor* and carried on his person or in his immediate effects revoking the gift." This should be rectified by the Legislature without fail.

Section 6(b) reads: "(b) If the written document of gift has not been delivered the donee, the gift may be revoked by destruction, cancellation or mutilation of the document." (sic). Section 6(b) of the Uniform Act is essentially the same as that in the Kansas Act with the exception of one important aspect, to wit the Uniform Act provides that the gift may be revoked by destruction, cancellation, or mutilation of the document and all executed copies thereof.

Section 6(c) states: "(c) If the gift is made by a will, it may be revoked in the manner provided for

revocation or amendment of wills." This is the same in both the Uniform Act and the Kansas Act.

Section 7 of the Kansas Act defines effect of gift on rights of donee: "(a) The donee may accept or reject the gift. If the donee accepts, and if the gift is of the entire body, the donee or his agent may, if he deems it desirable, authorize embalming and funeral services. The donee or his agent may immediately after death of the donor and prior to embalming, cause any part included in the gift to be removed from the body, without undue mutilation. The time of death shall be determined by the physician in attendance upon the donor's terminal illness or certifying his death, and he shall not be a member of the team of surgeons which transplants the part to another individual." The Uniform Act and the Kansas Act are essentially the same, however, the Uniform Act provides that after removal of the part, custody of the remainder of the body goes to the surviving spouse, next of kin or other persons under obligation to dispose of the body. The Kansas Act makes no mention of where the custody and obligation to dispose of the body rests after the portions to be utilized have been removed. I feel that this sentence is very important as an addition to the Kansas Act.

Section 7(b) of the Kansas Act now reads as follows: "(b) The donee, agent of a donee, or other person authorized to accept and utilize the gift who acts in good faith, in reliance upon, and in accord with the terms of a gift under this act, or any similar act, or upon a document carried by the donor as herein provided, and who is without actual notice of revocation of the gift, shall not be held liable for damages in any civil suit brought against him for his act."

Section 7(b) of the Uniform Act reads as follows: "(b) The time of death shall be determined by a physician who attends the donor at his death or if none, the physician who certifies the death. This physician shall not participate in the procedures for removing or transplanting a part." Section 7(b) is the section which we propose to amend in the following manner:

"(b) The time of death shall be determined by a physician who attends the donor at his death, or if none, the physician who certifies the death. This physician shall not participate in the procedures for removing or transplanting a part.

"(1) Definition of death.

"(a) A person will be considered medically and legally dead if, in the opinion of a physician, based on ordinary standards of medical practice, there is the absence of spontaneous respiratory and cardiac function and, because of the disease or condition which caused, directly or indirectly, these functions to cease, or because of the passage of time since these func-

tions ceased, attempts at resuscitation are considered futile; and, in this event, death will have occurred at the time these functions ceased; or

"(b) A person will be considered medically and legally dead if, in the opinion of a physician, based on ordinary standards of medical practice, there is the absence of spontaneous brain function; and, if based on ordinary standards of medical practice, during reasonable attempts to either maintain or restore spontaneous circulatory or respiratory function in the absence of aforesaid brain function, it appears that further attempts at resuscitation or supportive maintenance will not succeed, death will have occurred at the time when these conditions first coincide. Death is to be pronounced before artificial means of supporting respiratory and circulatory function are terminated and before any vital organ is removed for purposes of transplantation.

"(c) These alternative definitions of death are to be utilized for all purposes in this state, including the trials of civil and criminal cases, any laws to the contrary notwithstanding.

"(2) In any case where a patient is in immediate need of a replacement organ to sustain his life or to restore him to relative physical health or normalcy and no satisfactory donor organs are known to be available, it not being a condition precedent to the operation of this act that all other existing donor sources, either actual or potential, be exhausted by his physicians or himself, then, upon request of the transplanting surgeon to the coroner or his deputy, where a decedent has come under his jurisdiction or where it is known that a person upon his death will come under said coroner's jurisdiction and such death is imminent, then said coroner or his deputy will, when jurisdiction exists and where providing the organ for transplantation will not interfere with subsequent investigation or autopsy, provide such organ to the requesting surgeon. The coroner shall release such organs in the absence of actual known objection of the next of kin and it shall not be incumbent upon him to attempt to obtain their consent, time being of the essence to maintain the viability of the requested organ.

"(c) A person who acts in good faith in accord with the terms of this Act, or under the anatomical gift laws of another state (or a foreign country) is not liable for damages in any civil action or subject to prosecution in any criminal proceeding for his act.

"(d) The provisions of this Act are subject to the laws of this state prescribing powers and duties with respect to autopsies."

Our proposed amendments of Section 7 of the Uniform Act are entirely included within Section 7(b). The remaining sections of the Kansas Act are identical with those of the Uniform Act.

GUIDELINES FOR IRON REQUIREMENTS

Providing iron-fortified dietary staples such as milk, cereal, bread, grits or rice to children after six weeks of age is the most effective way to prevent iron deficiency on a large scale in infancy according to the American Academy of Pediatrics.

The AAP's Committee on Nutrition, in a statement appearing in the current (January) issue of *Pediatrics*, further recommends that the diet of normal weight infants should provide 1.0 milligrams per kilogram of body weight of iron each day by three months of age to a maximum intake of 15 milligrams each day to provide sufficient iron to maintain normal hemoglobin values.

"This requirement can be easily met," the statement points out, "by inclusion in the diet of appropriate amounts of foods which have been enriched with iron, such as infant cereals or milk formulas."

The Academy statement further indicates that the presence of low birth weight or decreased hemoglobin level in the first few days of life may identify infants who will need special iron requirements during the first 18 months of their life.

Discussing iron content for these low birth weight infants, and others with reduced iron endowment, the Academy Committee recommends that as much as 2.0 milligrams of iron per kilogram per day be included in their diets beginning by two months of age.

"This amount of iron will not ordinarily be provided by the diet, even if iron-supplemented cereals are given," the Academy emphasizes. "Attainment of these larger amounts requires the use of medicinal iron or iron-supplemented milk formula."

The Academy's Committee on Nutrition recommends that medicinal iron be continued for a month or so after normal hemoglobin levels have been attained to insure replacement of normal iron reserves.

Examining the reasons for variation in initial hemoglobin mass among infants which contributes to differences in body iron content, the Academy Committee says most evidence indicates that a mother's iron level has little effect on an infant's initial hemoglobin level.

"Multiparity, low socioeconomic status, and racial factors are commonly linked with a high incidence of iron deficiency anemia in the older infant," this statement points out.

"The frequent association of these situations with low birth weight and with an inadequate postnatal intake of iron, are probably far more important than any maternal effects on the infant's iron endowment."

In examining iron deficiency after infancy, the AAP points to surveys from widely separated areas in the United States which indicate that severe nutri-

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Time & Distance—Rural Practice

Dissatisfaction With Travel Distance to the Physician in a Rural Area

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THE SUPPLY AND DISTRIBUTION of physician manpower in the United States have been matters of public concern for several decades. The problem of distribution is perhaps the more difficult one. As Rashi Fein has recently pointed out, "Creating physicians because Appalachia or Harlem are without sufficient services is not likely to bring those physicians and their services to Appalachia or Harlem."¹ In a time that finds Americans moving increasingly into urban centers, there seems scant hope of new physicians migrating to rural areas in significant numbers, even if the medical schools greatly increase their output.

One of the principal components of the rural problem is that of distance. Rural people must often travel a long way to reach a source of medical care. Ciocco and Altman found that the frequency of visits to the physician varied inversely with travel distance in a study of 27 counties in western Pennsylvania.² The present study is concerned with the relationship between distances travelled to a doctor and popular satisfaction with these distances. The study region is a nine county, predominantly rural area in southeast Kansas. The 1960 population of 201,537 represented a decline of 15.3 per cent during the decade 1950-1960. At the present time the population has stabilized, but is older than the state mean.

In this study, rural is defined as any township with a population of 5,000 or less. By this criterion, 56.2 per cent of the population is rural. The urban population is concentrated in seven towns where 73 per cent of the area's 180 physicians are located, in-

cluding all 56 of those in specialty practice. Seventy per cent of the region's physicians are general practitioners. Only one of the counties has a physician-population ratio more favorable than the state figure of one doctor per 1,021 people.

This study examines the relationship between distance and travel time to the physician and popular dissatisfaction with variations in these parameters. One hundred questionnaires were mailed to randomly selected families in each of nine counties in southeast Kansas. Forty-eight per cent were returned. Dissatisfaction was greatest among residents of rural areas and increased with both distance and time required in transit. Most respondents became dissatisfied if required to travel more than ten miles or more than 20 minutes. Thirty per cent of those living in towns already served by a doctor nevertheless chose to leave their home town to seek care, and most of these persons expressed dissatisfaction with this voluntary travel. Ten per cent of respondents returned their questionnaires with unsolicited, largely negative comments on physician quality and availability.

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Method

One hundred families from each of the nine counties were selected at random from telephone directories. Ninety per cent of the families in the region have telephone service. Each family received by mail a four item questionnaire which requested the following information:

1. Where do the members of your family usually go to see a doctor (town, county, and state)?
2. How many miles is this from your home?
3. How long does it take you to get there?

TABLE 1
DISSATISFACTION WITH TRAVEL DISTANCE TO A PHYSICIAN
IN NINE KANSAS COUNTIES

County	1960 Population	Pop. Decline 1950-1960 Per Cent	Per Cent Rural	No. & Per Cent of Sample Responding to This Item*	No. & Per Cent Dissatisfied With Distance Travel to M.D.
Allen	16,369	-10	58	53	12 (22.5%)
Bourbon	16,090	-16	42	45	13 (29.0%)
Cherokee	22,279	-11	100	40	15 (37.5%)
Crawford	37,032	- 8	50	49	17 (34.5%)
Labette	26,805	- 9	48	45	5 (11.1%)
Montgomery ..	45,007	- 3	36	43	3 (7.0%)
Neosho	19,455	- 4	44	49	4 (8.2%)
Wilson	13,077	-12	100	43	4 (9.3%)
Woodson	5,423	-19	100	46	22 (47.8%)
Total	201,537	-15	56	413 (46%)	95 (21.8%)

* 100 questionnaires sent to each county; number returned and per cent returned are identical.

4. How do you feel about this (Too far or O.K.) ?

The questions appeared on the reverse side of a stamped, addressed post card. Four hundred and thirty-five cards were returned, a response rate of 48.3 per cent. Thirty-nine of these were incomplete or impossible to interpret in one or more items. For this reason, the results that follow may not total 435 responses for any given item. The distribution of the mailed questionnaires between urban and rural populations was virtually identical to the actual population distribution. Forty-three per cent were mailed to urban dwellers and 57 per cent to rural inhabitants. Logistical problems prevented a follow-up mailing.

Results

Table 1 shows the rate of dissatisfaction with travel distance to a physician in each of the nine counties. The over-all differences in the rate of response between the counties were not significant statistically, but the varying degrees of dissatisfaction were highly significant ($p < 0.001$). Dissatisfaction was significantly associated with both county rurality and with population loss during the decade 1950-1960 (Spearman Rank Correlation Coefficients 0.600 and 0.667 respectively).

Table 2 compares the rates of response and dissatisfaction in the urban and rural segments of the population. Again, the return rates were not significantly different, but the dissatisfaction rate in rural areas was significantly greater than that in the seven

urban towns ($p < 0.001$). This result serves to confirm the significant correlation between dissatisfaction and rurality mentioned above.

Out-of-Town Travel

In the nine counties, 145 of the 435 respondents (33 per cent) reported that they regularly left their town of residence to consult a physician. As Table 3 shows, 86 (59.3 per cent) of these 145 were dissatisfied with this arrangement. Indeed, the out-of-town travellers accounted for 90 per cent of the dissatisfied group, the remainder consisting of nine urban respondents who used local physicians. Although dissatisfaction with out-of-town travel varied from a low of 29 per cent in Wilson County to a high of

TABLE 2
DISSATISFACTION IN URBAN AND
RURAL AREAS

Area	Cards Mailed	Cards Returned*	Per Cent Returned	No. & Per Cent Dissatisfied
Urban ..	391	194	49.6	9 (4.6%)
Rural ...	509	241	47.3	86 (35.5%)
Total	900	435	48.5	95 (21.8%)

* Impossible to code 22; 5.1 per cent.

TABLE 3
OUT-OF-TOWN TRAVEL TO THE PHYSICIAN
AND PATIENT DISSATISFACTION

County	No. of Respondents Travelling Out of Town	No. & Per Cent of Dissatisfied Out-of-Town Travellers
Allen	21	9 (43%)
Bourbon	14	12 (86%)
Cherokee	30	15 (50%)
Crawford	23	15 (65%)
Labette	7	5 (71%)
Montgomery	3	2 (67%)
Neosho	4	2 (50%)
Wilson	14	4 (29%)
Woodson	30	22 (73%)
	145	86 (59%)

86 per cent in Bourbon County, the over-all differences in dissatisfaction between the nine counties were not statistically significant.

Of the 59 respondents who were satisfied with out-of-town travel, less than half (49.2 per cent) travelled for more than 20 minutes. On the other hand, 79 per cent of the 86 travellers who were dissatisfied spent more than 20 minutes in transit. This difference in travel time between those satisfied and those dissatisfied is highly significant statistically ($p < 0.001$). Further, dissatisfaction is significantly correlated with both travel time and travel distance (Spearman Rank Correlation Coefficients 0.8667 and 0.8292 respectively). The relationship between dis-

tance, time, and dissatisfaction is presented in Table 4. Table 5 shows the increase in dissatisfaction with increasing distance and longer travel time. A majority of respondents became dissatisfied if required to travel more than ten miles or for longer than 20 minutes.

Of the 145 out-of-town travellers, 44 (30.3 per cent) lived in towns with at least one physician. Yet 28 of these 44 (64 per cent) were dissatisfied with the distance they covered to seek care in another town. These people are in the paradoxical position of rejecting the services of the local doctor (or doctors) while expressing dissatisfaction over optional travels to an out-of-town physician whom they presumably find more satisfactory. It is noteworthy also that only seven of the 24 towns to which these 44

TABLE 5

A. How far is too far?*

Distance MILES	Satisfied	Dissatisfied	Per Cent Dissatisfied
< 1	107	1	0.9
1- 3	105	2	1.9
4- 6	28	2	6.7
7-10	31	12	28.0
11-20	27	36	57.0
21+	7	40	85.0
	305	93	30.5

B. How long is too long?***

Time MINUTES	Satisfied	Dissatisfied	Per Cent Dissatisfied
5 or <	104	1	0.9
6-10	99	0	0.0
11-20	76	18	19.2
21+	30	71	70.2
	309	90	29.1

* Incomplete or not codable on this item = 37.

** Incomplete or not codable on this item = 36.

families travel have physicians in specialty practice and that four families left towns with specialists to seek out a general practitioner elsewhere. This rejection of the local physician cannot therefore be explained adequately on the basis of need or demand for specialty care.

One possible explanation might be the work load of the local physician and the difficulty encountered in arranging for consultation. It is interesting in this regard that 10 per cent of all respondents in the study included unsolicited comments on the post card

TABLE 4
TRAVEL DISTANCE, TRAVEL TIME, AND
PATIENT DISSATISFACTION

County	Average No. Miles Travelled	Average Minutes of Travel	Per Cent Dissatisfied
Woodson ...	18.5	27.4	47.8
Cherokee ...	10.4	17.7	37.5
Crawford ...	8.4	21.4	34.5
Bourbon	8.3	19.6	29.0
Allen	10.4	18.8	22.5
Labette	3.8	12.0	11.1
Wilson	5.7	12.3	9.3
Neosho	5.5	10.1	8.2
Montgomery	4.1	11.8	7.0

questionnaire. Of the 43 comments received, four were words of praise for the local practitioner while 39 either complained about physician scarcity, physician quality or both. Twenty-three of these 39 expressed satisfaction as to distance and time. Their criticisms had to do primarily with long waits, brief and incomplete examinations, lack of house-call services, and concern over lack of any source of emergency care. None of the comments mentioned the costs of physician care. Several are quoted below:

"... two hours to see the doctor. A waste of time for working people."

"Would be nice to have first rate doctoring in this town." (This from a family living in a town with 27 physicians.)

"Problem is not how long does it take to get there but how long you have to wait to see doctor."

"Not enough men let through medical schools."

"This area needs some good general practitioners to give these overworked doctors either relief or stiff competition."

While it is impossible to be analytic about these comments, it is probably unwise to consider them unimportant artifacts because they do mirror a degree of public dissatisfaction if only from a minority. Perhaps the answer to the rejection of local physicians by some of the respondents is related most closely to these feelings on the availability and quality of physicians.

Comment

The results of this study are clouded somewhat by the response rate, which was less than 50 per cent. However, returns did not differ significantly between rural and urban areas or between counties with high and low levels of dissatisfaction as might be expected if one were to postulate a greater rate of return among the dissatisfied. For this reason, it is believed that the results obtained are, in the main, valid and accurate.

The principal findings are not surprising. It was expected that dissatisfaction would increase both with distance and travel time and that dissatisfaction would be concentrated in rural areas. Probably of greater importance, however, are the observations on how long and how far people are willing to travel before dissatisfaction manifests itself. Of course, how long and how far tell us nothing about how satisfied people will be once they reach the office of the practitioner. In this regard, the surprising tendency of 30 per cent of respondents to travel to another town to obtain care rather than to seek out their local doctor is of considerable import and suggests that even the presence of a physician in each small town is no guarantee of public satisfaction with his services. This problem was further emphasized by the un-

solicited comments which largely reflected dissatisfaction not so much with physician distribution but rather with physician quality and the frustrations of long waits and short consultations.

References

1. Fein, R.: *The Doctor Shortage*. The Brookings Institution, Washington, D. C., 1967, p. 143.
2. Ciocco, A. and Altman, I.: *Medical Service Areas and Distances Travelled for Physician Care in Western Pennsylvania*. Public Health Monograph No. 19, Public Health Service Publication No. 248, Washington, D. C., 1954, p. 29-32.

Iron Requirements

(Continued from page 92)

tional anemia is not an important universal problem by four or six years of age, even in children from low socioeconomic backgrounds.

The statement goes on to point out that it therefore seems likely that, "except for anemias secondary to blood loss, symptomatic problems of iron nutrition in childhood are largely restricted to the first two years of life."

Concluding, the statement makes this point: "Attention should be directed to providing a variety of iron-enriched dietary staples to be used routinely for feeding American infants during the period of life from 3 to 18 months of age, and to more precisely determining the best form of iron supplementation."

"At the present time, iron fortified baby cereals and milk formulas are the iron supplemented foods most generally available. However, these are often not utilized by segments of the American population which have the greatest need for them."

MANUSCRIPT AWARD FOR 1970

The Obstetrics and Gynecology Specialty Group of the International College of Surgeons has announced a competition for an award to be given the author of a manuscript selected by the Prize Committee of the Group. This award will consist of an invitation to present the winning paper at the Group's meeting in Paris, France, including a round-trip ticket, hotel expenses and \$10 per diem.

The purpose of this contest is to advance the art and science of obstetrics and gynecology in accordance with the principles of the International College of Surgeons and with the primary aim of the College, to extend the frontiers and elevate the standards of all branches of surgery.

Further details and the rules of the competition may be obtained from the JOURNAL, or from the International College of Surgeons, 1516 Lake Shore Drive, Chicago, Illinois 60610.

Computers and Cancer

Planning a Dynamic Tumor Registry at University of Kansas Medical Center

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AS THE ABILITY TO CURE and to control cancer improves steadily year by year, it becomes increasingly more important to identify and to follow closely patients who have cancer. The concept of the Tumor Registry as a dynamic clearing-house for information about individual patients and groups of patients with cancer is not an old concept. The idea that the computer (which may have replaced the dog as man's best friend) may be used to make this information clearing-house truly dynamic is sufficiently new that the medical literature is bare of articles on this exciting project.

The practice of registration of people with specific diseases is at least as old as the Book of Leviticus, where it was decreed that priests should identify and follow patients with leprosy.¹ A hospital unit devoted to patients with cancer was first started at Rheims, France, in 1740 and another at the Middlesex Hospital in London, England, in 1792. Follow-up of hospital patients and their registration was implied by the nature of these hospital units.² Tumor Registries have been in vogue in some American hospitals since before World War II, but generally have been regarded as dusty repositories of information about incurably ill patients where once a year the cards of the dead were sorted from the cards of the living. Though valuable studies obviously have been done with Tumor Registry data, Tumor Registries have not been used to their full potential for giving useful feed-back to practicing physicians about their own patients and about cancer in their locality.

Tumor Registries are basically of two types: hospital-based and population-based. The hospital-based registry, of which that at the University of Kansas Medical Center (KUMC) is a good example, records and follows patients with cancer only if they have been inpatients or outpatients at that particular hospital. Thus, such a registry is able to generate good information about survival for various cancers and, prospectively, to amass data of survival relative to

treatment mode. This type of registry cannot supply meaningful statistics about incidence of particular types of cancer. These can only be computed accurately by a population-based registry. In this instance a large group of people are monitored and all cases of cancer are reported to the registry at time of diagnosis by practicing physicians. This group of people may represent a city, county, state or an entire country. Two good examples of the population-based registry are the Connecticut State Tumor Registry, which reg-

Tumor Registries may become dynamic clearing-houses of information with the aid of computers. Freeing secretarial help from the drudgery of routine clerical tasks allows them to improve data collection and also to provide useful feed-back to practicing physicians. The marriage of the Tumor Registry and the computer seems a logical one and it is assumed that this will be a very fruitful union.

isters and follows all cases of cancer in that state, and the Denmark Tumor Registry where each case of cancer in that entire country is followed by a central registry.

The broad purposes of Tumor Registries are several:

1. Study of the natural history of cancer in terms of incidence and survival; particularly the effect of preventive measures and treatment on incidence and survival.
2. Close follow-up of individual patients to insure optimum treatment for them.
3. Service to practicing physicians, giving them follow-up on their own patients as well as keeping them informed on the natural history of cancer in their area and of recent advances in treatment and prevention.

Generally, Tumor Registries have done well in the first two tasks and very poorly in the third.

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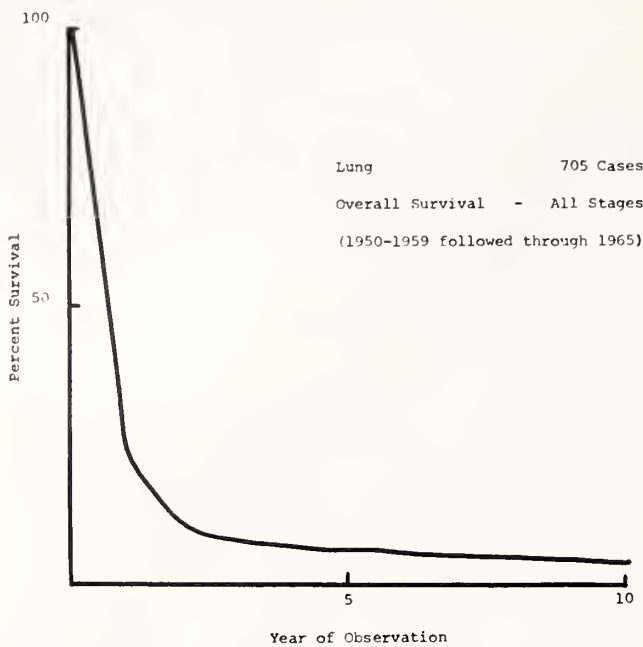


Figure 1

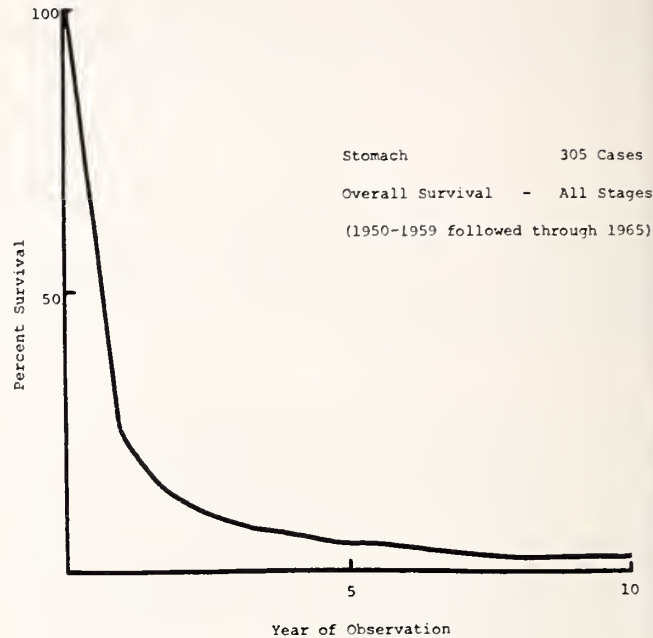


Figure 2

In 1947, Dr. Robert Stowell and Mrs. Kay Bevan started the Tumor Registry at the University of Kansas Medical Center. Using a standard IBM punched-card system, each tumor case is registered on one card. Patients with more than one primary cancer get more than one card. With trained tumor registry secretaries and physicians abstracting hospital charts, key information is put on each IBM card by key-punch machine. In addition to identifying data for each patient, diagnosis data, family history of cancer, presenting symptoms, site, histology, treatment, and a number of other bits of information are recorded on each card. Regular follow-up is recorded semi-annually or annually on each patient still living.

Over the years the KUMC Tumor Registry has been moved several times and now occupies a house at 3924 Cambridge Street just a block from the main medical center buildings. The staff includes four full-time secretaries: Miss Hilda Myers, R.N. Chief, Mrs. Frances McIntyre, Mrs. Marguerite Bench and Mrs. Dolores Wiesmann.

After 22 years of operation more than 20,000 tumor cases are now registered and have been followed. About 5,000 remain alive and are carefully followed semi-annually or annually, as may be appropriate, by letter to the patient and letter to the patient's physician and various social agencies. Because of the ingenuity and tenacity of the Tumor Registry secretaries a 99.3 per cent follow-up rate has been achieved over the years. With a record probably better than the Royal Canadian Mounted Police, it can be stated that the Tumor Registry secretaries always get their man.

Some data of general interest are shown in the graphs. In that about two-thirds of the patients followed by the Tumor Registry are from Kansas and the balance from neighboring states, the survival data probably can be construed as representative for the state of Kansas. Though these curves are not age-adjusted and though they represent all stages of disease, they still give us meaningful information.

The curves for lung and stomach cancer are almost identical (*Figures 1 and 2*). In each instance about 75 per cent of the patients are dead within the first year and about 15 per cent more during the second

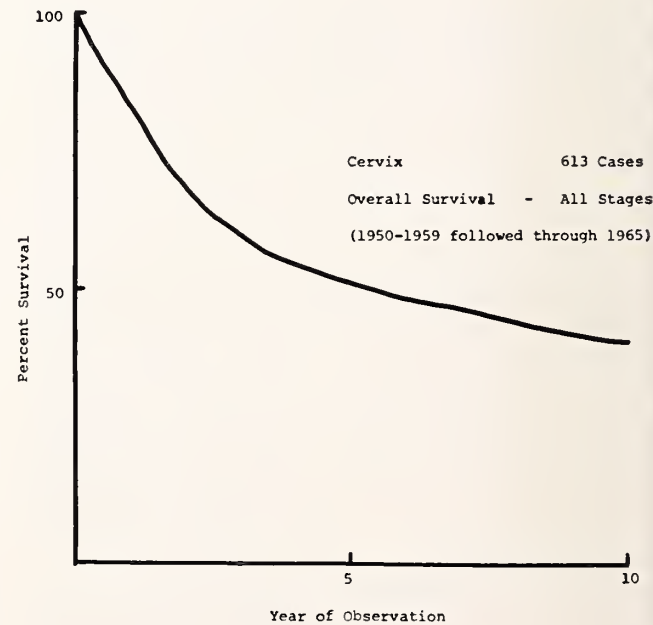


Figure 3

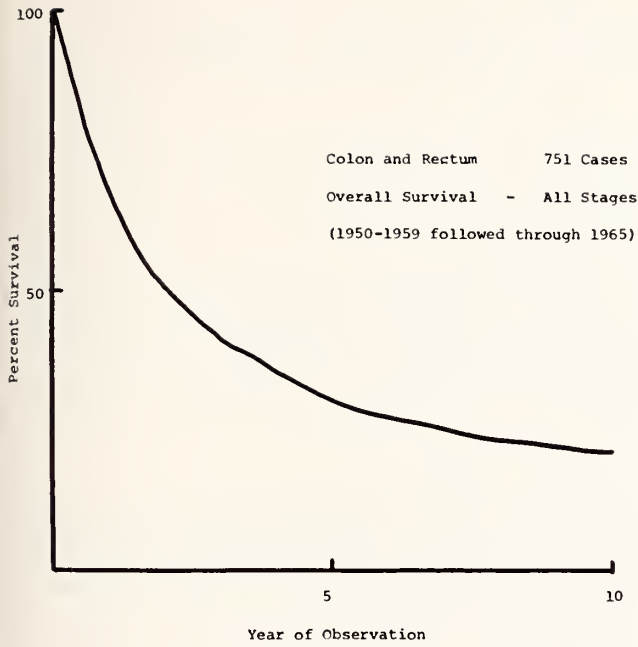


Figure 4

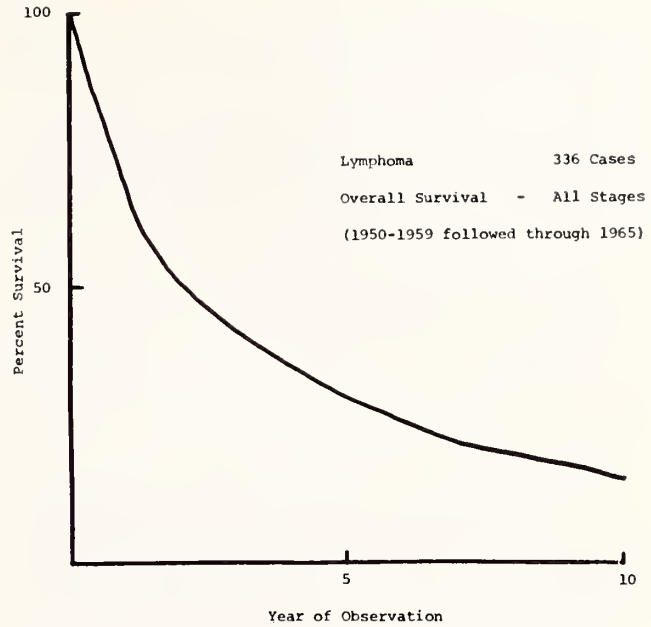


Figure 5

year. The curves then level off and nearly parallel the survival curves for cohorts without cancer. In these two tumors where surgical cure is possible in a small percentage, but where irradiation and drug therapy offer little in the way of control, the five-year cure concept long touted by the American medical profession really has meaning. Patients with stomach or lung cancer who are alive five years after initial diagnosis are almost always cured and rarely go on to die of recurrence of their original cancer.

The curves for cervix cancer (Figure 3) and for colon and rectum cancer (Figure 4) are also some-

what similar though not so striking. The level of survival is higher in these two tumors and the patient who achieves the five-year survival mark has a very good chance of reaching the ten-year mark also. Five-year survival for cancer of the cervix in this series is about 51 per cent and ten-year survival 41 per cent. The five-year figure for colon and rectum cancer is 30 per cent and the ten-year figure 20 per cent.

Quite different curves are apparent for lymphoma, prostate cancer and breast cancer (Figures 5, 6 and 7). The slopes do not level off. This is particularly true for breast cancer where five-year survival is somewhat greater than 50 per cent and ten-year sur-

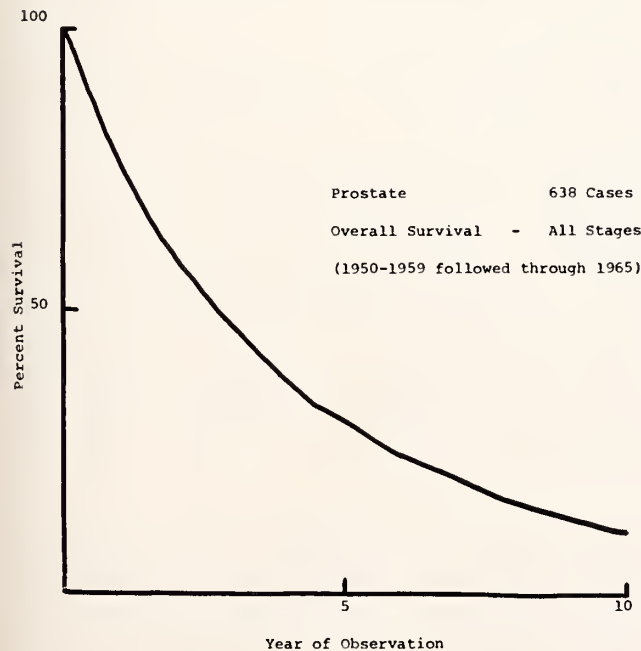


Figure 6

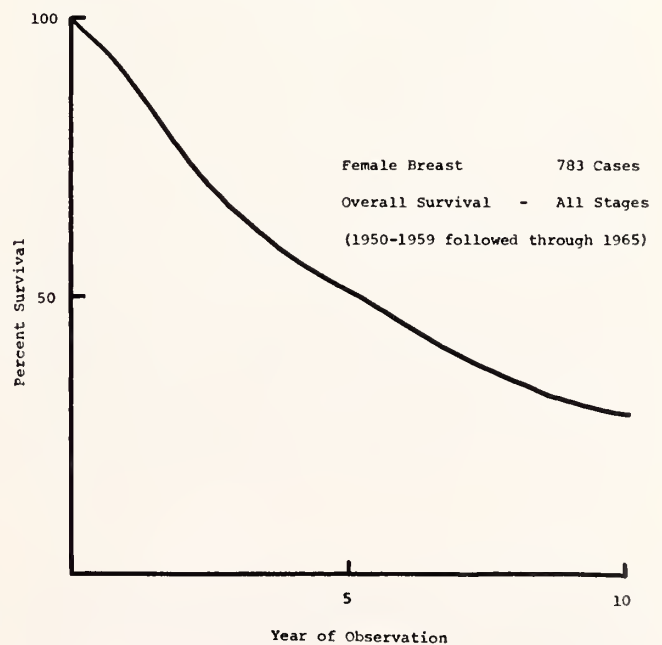


Figure 7

vival less than 30 per cent. Thus, the concept of the five-year cure is quite meaningless in these neoplasms. Whether the difference in these latter curves is due to control of tumor growth with drugs, irradiation, and surgery, or whether it merely reflects the natural history of these tumors cannot be determined from the graphs. In all likelihood both factors are operative.

Other interpretations may be drawn from the graphs portrayed here. Undoubtedly thousands of useful and meaningful observations may be made from analysis of the wealth of data in the 20,000 Tumor Registry cases. It is anticipated that the computer will greatly facilitate such analyses during the ensuing years.

The prototype of computerized tumor registries exists in Salt Lake City, Utah, and is directed by Dr. Charles R. Smart, Associate Professor of Surgery at the University of Utah School of Medicine. Dr. Smart has been very helpful in advising the Tumor Registry staff at KUMC about computerizing the KUMC registry. Much of what follows are Dr. Smart's ideas and observations.³

Utilizing a suitable computer and Dr. Smart's computer programs, survival data by tumor site, various patient data, and follow-up letters may be done by the computer for several hundred dollars per year total cost, saving thousands of hours of secretarial time. Additionally this system, as currently in operation, provides a regular computer print-out for each physician in the area so that he may know how his patients are doing and also know the total experience for various tumors in the registry. Recent references from the medical literature are also listed for him, or may even be abstracted.

If all of the hospitals in the state of Kansas had a Tumor Registry or at least had hospital charts of cancer patients regularly abstracted by trained secretaries, a state-wide population-based Tumor Registry could easily and cheaply be created by computer; including direct regular useful feed-back to practicing physicians, follow-up letters to patients and physicians, and accurate estimation of cancer incidence in Kansas. Inasmuch as most present data of cancer incidence are from urban areas, it seems quite likely that incidence figures from Kansas, a predominantly rural state, might be considerably different. Additionally, if the data base were properly constructed with respect to treatment modes, useful data might be generated for practicing physicians in Kansas about the relative merits of different treatment methods.

Bibliography

1. Leviticus, Chapters 13 and 14.
2. Bloom, H. J. G.; Richardson, W. W., and Harries, E. J.: Natural history of untreated breast cancer (1805-1933). *Brit. M. J.* 2:213-220, 1962.
3. Smart, C. R.: Personal communication.

HOW TO GET PAID FOR TREATING MILITARY PATIENTS

Payment to civilian sources for emergency professional services rendered to military personnel who are on active duty (as contrasted to retired, or inactive members of the National Guard or Reserve) is the responsibility of the Surgeon of the geographical area in which such services are provided. Collection cannot be made from the Office for the Civilian Health and Medical Program for the Uniformed Services (OCHAMPUS), Denver, Colorado, or its fiscal agents, who are responsible only for the payment of medical care to authorized dependents and retired military personnel.

When a patient is identified as an Army member, on active duty, notification should be made immediately by telephone to the appropriate Army headquarters, reporting where the individual is and the nature of the treatment required. The cost of the telephone call will be reimbursed with the other charges. The Army headquarters will advise the caller about the administrative management of the patient, and how to submit the bills for service.

Kansas is located in the Fifth U.S. Army Headquarters and notification should be sent to:

Commanding General
Fifth United States Army
Attn: Surgeon
Fort Sheridan, Illinois 60037

Telephone number:

Area code 312

Weekdays: 926-3275

Nights, weekends and holidays: 926-2238

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Television and Psychiatry

Observational Media in Psychiatry: The Concept of a Learning Laboratory

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IF BEHAVIOR IS to psychiatry as cell structure is to pathology, then it has been only for a short while that psychiatry has had a tool commensurate in importance to the microscope for the development of its science. That tool is television. In the mid-1950's, closed circuit television was first introduced in psychiatry and it was not until the early 1960's that videotape technology made available low-cost recording equipment for use in the behavioral sciences. The Department of Psychiatry at the University of Kansas School of Medicine was one of the first to utilize television in its teaching program. This pioneering work began in 1954 and was reported in 1958 by Ruhe and his associates.¹⁶ Since then, the use of electronic visualizing media in the behavioral sciences has burgeoned enormously. Observational media in psychiatry have come to play an increasingly important part in training programs and in research. There is a reasonable chance that these media may prove in time to be significant facilitants of treatment.

The term "observational media" as it is applied here subsumes all devices which afford enhanced capability for visualization and audition. In the field of psychiatry these devices have included one-way vision mirrors, sound transmission systems, closed circuit television, motion pictures, audio recording and videotape. While all of these artificial mediators provide an opportunity for non-participants to scrutinize behavior from a vantage point removed in space from where the behavioral events are unfolding (thus, with minimal perturbation of the behavioral process being studied), only the latter three provide storage and retrieval capability via recording and playback. It is this capacity to replay behavioral processes that endows observational media with the special significance

to psychiatry that was so clearly foreseen by Ruhe,¹⁶ and Wittson and Dutton¹⁸ in the mid-1950's.

The present discussion begins retrospectively where the earlier report by Ruhe and his colleagues ended; by describing, in the context of a theoretic frame-

Observational media (primarily television and videotape) have become important training and research tools in psychiatry. They can be utilized in training for demonstration, monitoring, and self-observation. There is a possibility that playback techniques may be useful facilitants of treatment, particularly in the modification of character problems. Observational media are conceptualized as the basic tools of a learning laboratory which can be routinely utilized to implement teaching, treatment, and research. The outlines of a design for such a learning unit, one currently being planned for the Kansas City (Missouri) V.A. Hospital, are presented.

work, the developments that have occurred in this area in the Department of Psychiatry of the University of Kansas School of Medicine since 1960. The final section of this discussion is concerned with prospects for the utilization of these electronic media in psychiatry with particular attention to the possibility of developing a model "learning laboratory" which can be utilized to subserve the three major functions of a university hospital: teaching, clinical service and research.

A Model of Psychiatric Training

Traditionally, psychiatry has been taught as every other medical specialty has been taught: by lectures, seminars, assigned readings, case conferences, ward rounds, and individual supervision in the manage-

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This work was supported in part by a Public Health Service Research Scientist Development Award (Number 5 KO1 MH 35294-02) from the National Institute of Mental Health (Dr. Reivich).

ment of cases. Although these traditional modes of teaching have been reasonably successful, many educators have been acutely aware of their weaknesses and have felt the need for modifications. For example, residents trained in a private psychiatric hospital will not ordinarily get to see the kinds of psychopathology seen by residents at public institutions, and vice versa. Ward rounds, so important from the point of view of the rapidly changing pathophysiology and laboratory values in medical and surgical patients, are virtually pointless on a psychiatric service (a caravan of physicians stopping in each room only to say hello). Consequently, most university hospital departments have replaced traditional ward rounds with daily patient-staff meetings where doctors not only see their patients but also observe their behavior in the far more dynamic setting of a community meeting and thus have the opportunity to assess behavioral changes under various conditions.¹² Similarly, individual psychotherapy supervision may be criticized because (1) the resident does not present a veridical picture of what actually transpires in his session with the patient for he must depend on memory supplemented only by "process notes" (a compendium of what happened in the therapy session), jotted under the stress and demands of the interview itself (or immediately after); (2) the supervisor does not see the resident actually perform psychotherapy but must assess and assist him only on the basis of his performance in supervision; and (3) the resident rarely, if ever, has the opportunity to observe an expert actually do psychotherapy but instead must depend on seemingly random supervisory cues and comments, supplemented by reading, to ascertain as best he can just how psychotherapy is actually accomplished.

Although it has been agreed by most psychiatric educators that traditional process notes-oriented supervision can provide an adequate learning experience, the above criticism seems irrefragable and entails the result that traditional psychotherapy training does not closely monitor the trainee's learning progress nor does it help him to monitor his own progress. A relative inefficiency of process and uncertainty of result can be expected to be associated with such instructional laxity. Fortunately, the utilization of observational media to supplement or, in some cases, to replace traditional methods of teaching can overcome all of these problems. In essence, electronic mediators can be used in three ways: (1) for demonstration purposes; (2) for monitoring the performance of the resident; and (3) for self-observation by the resident. Each of these modes of employment should contribute in a more or less unique way to the total training program.

Observational media can be used for *demonstrating* patients or expert therapists, or both, in the interview

situation. A library of psychopathology, consisting of recordings of actual behavior can be collected and exchanged so that tapes are made available and residents in any kind of institutional setting are exposed to an appropriately wide variety of patient-types and problems. At the University of Kansas Medical Center, visiting lecturers have, from time to time, been recorded for subsequent replay to students and other trainees. Closed circuit television and tape recordings have been used not only to present psychopathology but also to demonstrate interviewing techniques, individual psychotherapy, group therapy, psychological testing, electro-convulsive treatment, and play therapy. One particularly popular and useful mode of teaching has been a continuing case treatment seminar involving a senior therapist, who is a psychoanalyst, and a patient who has now been in treatment for two years. All treatment sessions are observed by residents and clinical psychology interns on closed circuit television or by videotape recording. After each treatment session, the therapist and students meet to discuss the psychotherapy hour. This kind of demonstration and teaching provides the student with a model of effective therapy practice on which he can base and assess his own therapy behavior,¹⁴ and can be considered a form of identification learning, an important mechanism for the learning (in effect, by imitation) of important social roles. This opportunity for identification learning typically has not been provided by traditional programs not employing observational media. This deficit in conventional training (consisting of the lack of a specific model provided to the resident) may account in part both for the great variability between psychiatrists in therapy skill and for the fact that even therapists of the same theoretical orientation in practice often see things differently from one another.^{5, 17}

Monitoring by television or videotape provides the supervisor with the opportunity to evaluate directly a resident's performance in psychotherapy. This offers the supervisor a chance to correct the resident's errors before they become ingrained and before they become seriously detrimental to the patient. The student is relieved to some extent of the pressure to sift from the plethora of data that accumulates in any therapeutic session the crucial events and themes so that he can present a lucid, accurate, and undistorted account of what he actually did and how the patient, in fact, responded. Also, the resident can validate his diagnostic impression and psychodynamic formulations against those of his supervisor. In turn, the supervisor can be reassured not only about the professional growth of the resident but also about the progress of the patient, for whom he assumes a substantial burden of clinical responsibility when he undertakes the task of supervision.

Self-observation via videotape recording and playback enables the student to review his therapy sessions without the concomitant stress of having to interact effectively with the patient. He can watch and listen to himself repeatedly under low-anxiety conditions and learn from his mistakes, particularly when these mistakes are pointed out by a supervisor reviewing the tape with him. Furthermore, the resident can compare his own performance with that of the model therapist whom he has observed on television. In our experience, students have reacted strongly to self-observation. Often, the confrontation with their videotaped image precipitates an initial response of shocked surprise, sometimes even a short-lived, dazed depression. The student may say (or think) something like, "My God, I know it's me but I didn't realize I was doing psychotherapy so badly." Despite this early "stun" effect, students, though intensely self-critical as a rule, tend to be extremely enthusiastic about this mode of teaching; however, it is too early to evaluate with any degree of precision just how important this kind of learning experience will turn out to be in the student's over-all professional growth. Much research needs to be done in this area.

In brief, an ideal or model training program in psychiatry should include for the trainee, in addition to conventional process notes-oriented supervision and other traditional forms of instruction, opportunities for observing expert demonstrations of treatment technique, for staff supervisory monitoring of the student's work with the patient, and for self-observation via videotape.

Research and Treatment Applications of Observational Media

Although motion pictures have been utilized sporadically in behavioral studies over the past half-century, the relatively high cost of film production has been a prohibitive factor in the utilization by behavioral scientists of cinematic equipment for research. For different reasons audiotape has also been neglected as a research tool. In the case of sound recording the absence of the visual dimension resulted in the omission of a large amount of significant behavioral data that might be crucial to accurate analysis of the process under study. The advent of low-cost videotape hardware has successfully eliminated both of these drawbacks.

As reported in a series of papers,^{6, 7, 13} the present authors have used videotape playback to study the self-cognition process in psychiatric patients. Although some clinicians have already begun to employ videotape playback as an aid to treatment, at the present time there is neither impressive theoretical reason nor empirical data to justify this use except as an experimental procedure. However, the impression-

istic findings of Alger and Hogan,¹ Renneker,¹⁵ Geocaris,⁸ and Cornelison and Tausig⁴ as well as the more objective findings of Moore *et al.*,¹⁰ Geertsma and Reivich,⁶ and Boyd and Sisney,² suggest the possibility of therapeutic application. On the other hand, Paredes and his colleagues¹¹ were unable to demonstrate significant impact of self-observation on 50 dependent parameters and both Holzman,⁹ and Reivich and Geertsma¹³ have presented cautionary observations on the possible adverse effects of carelessly or thoughtlessly programmed self-confrontational experiences.

Although Cornelison and Arsenian³ in their early, groundbreaking paper speculated that "self-image experiences" might be particularly useful in helping schizophrenic patients establish more realistic ego boundaries, the authors' experience so far has suggested that playback confrontation might be especially useful in the treatment not of psychotics but of patients with serious character disorders. Typically, a person with a "character disorder" does not tolerate uncomfortable or painful psychiatric symptoms (such as anxiety or depression) but instead resorts to action to reduce his discomfort almost as soon as he registers it. This tendency toward indiscriminate action—or as it is sometimes called, this "acting out" behavior—often causes distress to others (e.g., to society, spouses, relatives, etc.). Most persons with character problems share one salient characteristic: they are limited in their powers of self-observation, in their ability to see themselves objectively, to understand the implications of their own behavior, to ascertain the effect of their behavior on themselves and others and, in summary, to learn from experience. Furthermore, because they often suffer so little themselves, they are notoriously unmotivated for treatment; consequently, they form a large class of people whose behavior is disturbed, who make others (and sooner or later themselves) unhappy, and who are not ordinarily susceptible to change. Because of the power of videotape to present accurate feedback about one's own behavior, this medium may prove to be of crucial importance in the treatment of this important group of patients. One preliminary study⁶ tended to support this hypothesis but, again, much more data needs to be accumulated.

The Concept of a Learning Laboratory

While observational media may or may not play a critical role in psychiatric treatment in the future, they have already assumed an important role in training. Perhaps it is fair to say that their role in psychiatry is in some ways analogous to their role in the speech and language fields. In speech therapy, for example, a traditional speech modification technique involves having the subject listen to "correct" words,

phrases, or sentences (a criterion or model performance) and then asking the subject to duplicate the sounds he has heard. Following this, the subject listens to a tape recording of his own speech effort so that he can compare and contrast it with the criterion. In successive approximations, he can come closer and closer to the correct enunciation. Similarly, teachers of foreign languages employ language laboratories where students listen to a criterion performance, attempt to imitate it, and then obtain feedback via a replay of their own audiotaped endeavor. The crucial ingredients in this successful educational recipe are, of course, nothing more nor less than expert demonstration and playback-mediated self-observation. In these examples, the speech therapist or language instructor assumes responsibility for what amounts to supervisory monitoring. Can the concept of a speech or language laboratory for learning be applied to psychiatry?

Pursuing these thoughts further leads inescapably to the conclusion that the systematic and parsimonious utilization of observational media in psychiatry must some day lead to the development of a psychiatric analogue of the language laboratory which can be used to supplement traditional conference room teaching.

Other kinds of technology which provoked stirrings in the various areas of education have by now also begun to reach the domain of psychiatric training programs. They are also pertinent to the concept of a psychiatric learning laboratory. Examples of increasing activity in relatively untraditional educational methods are the following:

1. *Programmed instruction*, especially involving the utilization of audiovisual material displayed on a console.
2. *Single concept films*, produced on handy 8 mm cassettes or cartridges for brief audiovisual presentations.
3. *Inter-university tape exchanges*, currently on an informal basis, but which someday may entail a comprehensive formal network for cataloging, storing, and exchanging special educational tapes, films, instructional programs, etc.

What all of these relatively unconventional teaching formats have in common is that they can be used for self-instruction, require special display equipment, and rely heavily on audiovisual presentation. A well-designed laboratory module containing television production and playback equipment as well as projection apparatus can provide in a compact space the tools required to enable students at every level of training to utilize observational media optimally. Such a laboratory unit is being planned for the Department of Psychiatry of the Kansas City (Missouri) V.A. Hospital. The general outlines of its design are sketched below.

A Multi-Functional Learning Unit

A learning laboratory in psychiatry should be as flexible as possible so that the expensive equipment involved can be fully utilized. The unit currently being planned consists of a central control area where a technician will be stationed. This control area will have access to each of four contiguous interview and playback rooms. Directly adjacent to the control and playback areas will be a classroom and group therapy room specially equipped with versatile audiovisual aids.

In the central control area will be television cameras, a control panel for electronic switching and amplification, and specialized cameras and circuitry for obtaining data storage and write-out capability. For example, it should be possible to visualize as many as eight physiologic parameters on an adjacent oscilloscope time-locked to a videotape recording of an interview so that physiological measures (e.g., EKG, EEG, GSR, etc.) can be correlated at a glance with the behavioral events under study. It will also be possible in reviewing the tape to activate an ink-writer to trace out quantitatively accurate measures (reactivated from tape storage) on polygraph paper for research use when such data is needed. This kind of data storage and retrieval module not only will have specific research applications but also can be used to demonstrate to students the physiologic concomitants of the patient's mental activities. The interview and playback areas will be set up as comfortable small offices with remote controls in easy reach of student, therapist, or supervisor. Thus, operation of the videotape recorder and cameras will be simple and unburdensome, causing a minimum disruption of therapy or supervision. If electronic hardware is difficult to operate or hard to get to, the equipment will be, predictably, under-utilized or even totally rejected. The adjacent special classroom will be convertible into a group therapy area which will have cable connections to a conference room across the hall so that group processes can also be comfortably studied.

When and if videotape self-observation procedures become an accepted adjunct to treatment, the peripheral interview rooms, of course, can also be used for that purpose. Medical students, psychology interns, residents, and staff can utilize the same equipment for diverse purposes at varying levels of professional sophistication.

References

1. Alger, I. and Hogan, P.: The use of videotape recording in conjoint marital therapy in private practice. Paper read at the Annual Meeting of the American Psychiatric Association, Atlantic City, May 13, 1966.

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Psychiatric Clerkship—

—in Retrospect

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Introduction

THE ACADEMIC WORLD in the field of medicine is experiencing a lot of soul-searching and agonizing appraisal of the curriculum that has been traditionally taught to the medical student since the advent of the Flexner Report. One of the items that comes for close scrutiny is the core content of the information that is shared with the medical student. Also, the purpose of medical education comes for intense investigation. It is generally conceded, though, that in order for effective education to occur, the student must (1) be given information; (2) acquire certain skills; (3) develop certain attitudes with regard to his profession. In short, useful knowledge and experience is the essence of quality education.

At the University of Kansas Medical Center a psychiatric clerkship program, which embodies the thoughts mentioned above, has been in operation for the past several years. The details of this program are discussed in an earlier paper,¹ but briefly, the senior student passes through the Department of Psychiatry for a period of eight weeks full time, during which he spends half a day with hospitalized patients and the other half with outpatients. He has direct responsibility for patient care and he is closely supervised in his work with the patient. Also, a series of lectures are given to the student on his psychiatric clerkship.

Methods

At the conclusion of the psychiatric clerkship all the students who passed through the program from June 1, 1965, to May 30, 1968, were given a questionnaire in which they were asked about their experiences on the psychiatric clerkship. The questions were:

- A. What did you hope to get out of the psychiatric clerkship?
- B. How far were these hopes materialized?
- C. What was your attitude toward psychiatry at the start of the clerkship?

D. What is it now?

E. If there is any change (either positive or negative) what brought it about?

Most of the studies in this area are statistical and often use the strategy of "forced choice" questionnaire method. The present effort is a departure from this widely accepted contemporary practice inasmuch as the questions do not make such a demand on the

Educators of today need to appreciate the fact that modern students are more aware of social problems than ever before. Changing social conditions inevitably call forth new types of individuals who are able to function more effectively in the new order.

students and provide for them an opportunity to express their thoughts and feelings in a spontaneous fashion. Scientific objectivity is by design sacrificed in favor of elasticity in human experience. Currently in a number of papers in behavioral sciences the view of man as an object has become more than a method of study; it has become man's view of man. The author deplors this trend and therefore steers clear from it in this paper.

Results and Comments

Three hundred and twenty students returned the above questionnaire. The statements made by the students in each of the categories were carefully analyzed; many distinct phrases and sentences were extracted by combining statements which were conceptually closely related into suitable paraphrases, by eliminating duplications or ambiguous formulations; and by careful editorial work.

CATEGORY A: *What Did You Hope to Learn on the Psychiatric Clerkship? (Table 1)*

Three students in item one either stated their expectations as such or left the category blank.

In items 2a and 2b, "to gain self-understanding" and "to gain insight into others, human behavior,"

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TABLE 1

Item No.	No. of Students
1 No expectations	3
2 (a) To gain self understanding	9
2 (b) To gain insight into others, human behavior	17
3 To learn the day-to-day activities of a psychiatrist and the institution in which he works	5
4 To learn whether or not I am interested in becoming a psychiatrist or if I am suitable for psychiatry	17
5 To learn psychiatric theory, diagnosis, and methods of treatment from a psychiatrist's viewpoint	99
6 To learn when to refer a patient to a psychiatrist	22
7 To learn psychiatry as it applies to practicing physicians	104
8 To learn how to interview patients and effectively make recommendations	44

it was found that these students had hopes of getting some solutions to their personal problems of psychological nature while they were on the clerkship. One of the students expressed it as "while I am on the clerkship I would like to know how a schizophrenic patient thinks and feels. I want to have an insight of a schizophrenic. I do not know whether I will be able to get it, or a person has to be psychotic to get it." This student had had previous experience working in a state hospital as an attendant, lab technician, doing physical examinations on mentally ill patients, etc., for all of which he volunteered before he came on the psychiatric clerkship rotation. A few of these students would ask for a psychiatric consultation for themselves or their wives; however, would phrase the problem in the following manner, "I have a neighbor who says. . . What do you think I should tell her?" After some experience in working with the psychiatric clerks, the teacher is quickly able to detect these curbside consultations as camouflage for personal or family problems and is therefore able to respond to them at that level. A couple of students stated that "When I was in the therapeutic community meeting I found that in my mind were passing thoughts similar to the ones expressed by one of the patients in the meeting." Or, "I found myself very comfortable in the therapeutic community meetings and I have always had difficulty in being comfortable in groups before."

Every student spent half a day working with in-

patients who were hospitalized either at the Veteran's Administration Hospital or in the Department of Psychiatry at K. U. Medical Center. It was hoped that with the experience which the students acquired under these circumstances they would be able to answer questions when, in their practice, the question of psychiatric hospitalization arose. Also, they would be able to see the usefulness and limitations of psychiatric hospitalization, the complexities of the therapeutic community meetings, the potential of adjunctive therapies like occupation, recreation and industrial therapy, the use of tranquilizers and antidepressants in the management of major psychosis. It is interesting to note that since the majority of the students would be practicing in areas other than psychiatry, only five out of 320 expressed that this was what they hoped to learn on the psychiatric clerkship under item three.

The 17 students in item four utilized the clerkship for exactly the purpose for which medical education is geared, mainly, to expose the student to a variety of disciplines so that he can get a taste of each one and thereby be better able to make a choice as to what kind of doctor he wants to be after he gets his basic M.D. qualifications. Also, the students in categories six, seven and eight comprehended the message of the psychiatric clerkship since it is structured primarily for those who would not go into the speciality of psychiatry and who constitute the majority of the students in the senior class.

Ninety-nine students who responded in item five demonstrate eloquently the differences between psychiatric diagnosis and somatic or organic diagnosis. Since the majority of the students have extensive exposure to the medical model of human illness, they have difficulty in appreciating that a psychiatric illness is just a departure from "normal" in human functioning, and it is a continuous process as opposed to the discontinuous situation prevailing in the other branches of medicine. Their passion, therefore, for making a psychiatric diagnosis is understandable since this is a carry-over from their experience on the other services. They feel that the inability to make an accurate psychiatric diagnosis is indicative of either the incompetence of the psychiatrist or the unreliability of psychiatric knowledge. Although the limited value of psychiatric diagnosis was explained to the students in a variety of situations, a number of them answered that their improved ability to make a psychiatric diagnosis was a significant contribution to their learning experience. The aphorism of Dr. Alan Gregg, "There are no diseases, there are only sick people" is a tough concept for the medical student to comprehend.

CATEGORY B: *How Far Were These Hopes Materialized?*

The breakdown of the 320 students in this category is as follows:

TABLE 2	
Item No.	No. of Students
1 Nil	0
2 Mildly	7
3 Moderately	52
4 Greatly	238
5 Completely	23

CATEGORIES "C"—*What Was Your Attitude Toward Psychiatric Clerkship?* and "D" *What Is It Now?* could be examined together as in the following table.

TABLE 3				
	Negative	Neutral	Interested	Positive
Pre-clerkship attitude toward psychiatry	60	150	44	66
Post-clerkship attitude toward psychiatry	10	22	26	262

The ten students with negative post-clerkship attitude towards psychiatry started the clerkship with a negative attitude. The situation reminds me of Leo Durocher's statement "You can't win every ball game."

CATEGORY E: *If There Is a Change (Either Positive or Negative) What Brought It About?* (Table 4)

Students in items one and six clearly point out the fact that they appreciate having responsibility and are able to discharge their obligations in a praiseworthy fashion, when a structure is developed in which they will be able to translate their unmet needs from becoming a doctor to being a doctor. At an emotional level, medical education is the most organized artificial postponement of adulthood. Above data indicates that this need not occur. The opportunity to work with the patients directly enabled the student to use his knowledge and skill in a novel way rather than to spout "canned" application. The objective of the clerkship was to provide a structure that would enable the student to stretch his mind

rather than hold it static for our ruler so that we could measure it.

Students in items two, four and five are commenting about the cognitive area in terms of fund of psychiatric information and the relevance of it in a clinical situation as much as to say "the proof of the pudding is in the eating." This was accomplished through a series of lectures, case conferences, T.V. interviews and videotape demonstrations. They were all designed to prevent the student from becoming a cognitive stylist limited to habitual mental approaches and become a cognitive strategist able to draw from a diversified repertoire of cognitive abilities. Students in items three and eight are commenting in a pointed way about the process of identification and its importance in an educational process. The two students in item seven have probably a marketing orientation in selecting their career choice and would no doubt look at the supply and demand equation from a monetary point of view. Although they did not express this feeling frankly, one of them privately confided in me, "I have heard it said that all psychiatrists are very busy and that they have a waiting list of patients and make good money in their practice." Eleven students in item nine emphasized the unique nature of the practice of psychiatry inasmuch as not only is the physician helping the patient, but by virtue of the fact that both the patient and the physician are human beings they, in a way, help each other. Although this problem is prevalent in any clinical transaction, it is heightened in a psychotherapeutic situation to such an extent that psychi-

TABLE 4	
Item No.	No. of Students
1 Direct contact with patients—practical experience	77
2 Gain of knowledge useful to the practicing physician	21
3 Gain in respect for psychiatrists due to direct contact with them	83
4 Witnessing effects (good or bad) or lack of effects in psychiatry	38
5 Gain in awareness of mental illness and independent significance of psychiatry in dealing with it—gain in knowledge of what psychiatry is	47
6 Duties, atmosphere, and organization of the clerkship	39
7 Gain in awareness of current opportunities in psychiatry	2
8 Observing the psychiatrist at work	2
9 Personal insight in increasing confidence	11

atrists have written voluminous material on the phenomenon transference and counter-transference in the practice of psychotherapy. One of the students commented, "I feel more comfortable in talking to a mentally ill patient than when I started the clerkship."

Discussion

In the discussion, I will draw upon my experiences (1) working with psychiatric clerks and (2) as a member of "core curriculum committee" of the University of Kansas Medical Center.

It happens very often that faculty spends an inordinate amount of time in determining what the core content of the curriculum should be. While a sober, thoughtful examination is imperative for quality medical education, very frequently these discussions involve an expenditure of time, effort and energy to a point of diminishing returns. It also happens that unfruitful debates center around the merits or demerits of the structural approach as opposed to the functional in the study of human health and disease. Since the answers to the above two approaches are not clear-cut and unambiguous, often these discussions generate more heat than light.

The approach used in the psychiatric clerkship can be described as "immanent approach"; that is, one dealing with the clinical situations as they occur in life and discussion of only that much theoretical knowledge as is necessary to handle the patients. In this way the theoretical knowledge is made relevant to the problems presented by the patient and the students begin to believe what they are taught. It is telling the student "like it really is." The content of the core information was arrived at by examination of the kinds of problems the general practitioner faces in the psychological management of his patients. This knowledge was shared with the students and they were asked to comment upon its usefulness in the years of 1963, 1964, 1965. The content was constantly modified until we arrived at a body of knowledge that would do the most good for the majority of the students. This impresses me as an economical way of approaching the "core content" dilemma.

How can the students acquire rudimentary skills of psychiatrists? It seems to me that the mystery surrounding this area could be removed when the teacher of psychiatry talks to the patient in front of the students in the teaching situation and demonstrates his skills. When the students appreciate the fact that the kind of questions an experienced psychiatrist asks of the patient are different from those that they would have asked, then the single most dominant objective of psychiatric education has been accomplished. The students need not accept on implicit

faith the mystical powers of the psychiatrist. This situation should be reversed towards the end of the clerkship period so that the teacher will have an opportunity to see the kind and extent of skills acquired by the students in their clerkship experience.

How does a teacher go about developing or changing the attitudes of the students with regard to his particular discipline? This probably is the most difficult as well as the most crucial part of any educational endeavor. To achieve desirable results, the students must be able to see in their psychiatric teacher a model with whom they are able to identify. As this identification process starts gaining momentum there will occur a shift in their appreciation of the psychiatric problems significantly different from those they had when they first arrived on the clerkship. In order to achieve these objectives it is imperative that the students see the teacher in the clinical situation often enough to provide them an opportunity for feedback and re-enforcement of the positive and correction of the negative attitudinal input that will occur in these situations. Also, free and frank discussions between the students and the teacher about the psychological elements involved in a particular situation will give the students access to the thinking of the teacher at the time the patient was interviewed, thus bringing into their awareness the complexities of the varieties of factors a psychiatrist has to cope with when he talks with the patients. I have commented in an earlier paper² as to how this problem could be approached in the more compelling way. Identification process was hinted in the study in the comments of the student "I know what it is like to be a psychiatrist." This is an area of affective learning which necessarily is time consuming. Therefore, a period of eight weeks does not permit the identification process to jell in any significant way; however, a beginning toward it can be made at a crucial moment in the career choice of the medical student. The implications of this thought are far-reaching in current university atmosphere. In present day academia, it is difficult for the students to find an experienced teacher regularly, since a good many of them are away from homebase in pursuit of grants, attending conferences, offering consultation, or engrossed in administration or research which would enhance their professional status in the eyes of their colleagues. Such accomplished teachers only put in "cameo" appearances as far as their own students are concerned. Therefore, the students understandably become frustrated and at times enraged at the establishment. The traditional rebellion of the student in the education establishment used to be in "local parentis" but now

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Grow Old Along With Me

Physiological Aspects of Aging

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LET US ACCEPT the definition of aging which was adopted as a basis for discussions of radiation and aging by a panel meeting ten years ago under the auspices of the American Institute of Biological Sciences. "Aging is the deterioration of a mature organism, resulting from time-dependent, essentially irreversible changes intrinsic in all members of a species such that, with the passage of time, they become increasingly unable to cope with the stresses of the environment, thereby increasing the probability of death."⁶ It should be noted that this definition excludes disease *per se* while admitting that aging increases susceptibility to disease. There is general agreement that aging as it commonly occurs is due to a combination of physiological and pathological causes but the definition encompasses only physiological aging.

Korenchevsky⁸ has clearly differentiated between the physiological and pathological causes of aging. Physiological causes are those which are unavoidable, constant and present in every species and individual—the basic primary causes of aging. He says "With the exception of the hereditary factor, they are as yet not identified, and in fact we know nothing about them." The pathological, or secondary, causes of aging include all factors non-specific for old age which increase the involution of the organism or of one or more of its organs or tissues.

Problems of aging are the special province of two medical specialties, geriatrics and gerontology, concerned primarily with pathological and physiological aging, respectively. However, neither the geriatrist nor the gerontologist has access to human subjects whose aging can be attributed to either physiological or pathological causes alone. As Korenchevsky⁸ points out, "... old age is an abnormal, pathological syndrome, in which physiological processes of aging are complicated and aggravated by various so-called degenerative diseases of old age. Consequently, at present it is impossible to find a human being who ages physiologically, and whose old age, span of life and death are physiologically normal. . . . Hence a direct investigation of the physiological old age, in particu-

The genes are the most important single determinant of aging and longevity. Throughout man's history his potential life span has not changed although medical advances have remarkably increased the fraction of it he may reasonably hope to realize. Most individuals sooner or later succumb to their environment before fulfilling their allotted spans. Since aging is among the most common of biological phenomena it is not surprising that efforts to find a common universal cause for it have been abundant. The obvious fact that heredity is of fundamental importance makes it equally obvious that the genes should be a prime suspect. The top question would seem to be whether the aging of cells is inherently determined by normal genes or whether a deterioration of genes is the primary event.

lar in man, is impossible till the time when human beings will age and die physiologically." The main characteristic of the secondary, or pathological, causes of aging is that because of their accidental nature they are not present in all individuals, though some of them may contribute to aging in the majority of cases.

It is often difficult or impossible to determine the relative importance of physiological and pathological processes which contribute to aging. The best opportunity to study physiological aging is provided by animal colonies maintained in an environment which provides conditions as nearly ideal as possible. Fortunately there is little reason to doubt that its primary causes and mechanisms are essentially identical in the various species of animals.

Life Span and Life Expectancy

The importance of heredity as a determiner of longevity is most clearly demonstrated by the widely differing life spans of different animal species, but it is a long known truism that the best way to insure

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the possibility of living to a ripe old age is to select long-lived grandparents. We are forced to accept the fact that we cannot grow tall or live long if we lack the genetic templates for tallness or long life.

There is no valid evidence that man's potential life span has changed since the Stone Age. The probability of living to 110 years of age is the same now as it has always been, virtually 0 per cent. "The common impression that modern medicine has lengthened the human life-span is not supported by either vital statistics or biological evidence."¹⁰ The genetic program for human life has thus been demonstrated to possess remarkable stability with respect to longevity.

Average life expectancy is a different matter. Our chance of surviving to 50, 60 or 70 years of age is a great deal better than our grandparents enjoyed. Ever better control of diseases continues to improve the probability of survival to the ages for which we are genetically programmed. In other words, the ratio of physiological to pathological aging is increasing. The curve of survival is being pushed closer to its limits. In the more advanced countries the average life expectancy is much higher than in more backward countries, not because the inhabitants possess a greater inherent potential for longevity but because the probability of their realizing that potential is better.

To die of old age is still a rarity anywhere on earth. It may be assumed that those who reach advanced years have been relatively little affected by secondary, or pathological, causes of aging. But we become increasingly susceptible to disease and injury as we age and decreasingly able to recover. After age 30 the probability of being killed by some unphysiological environmental stress doubles approximately every eight years. The fact that we are eventually victims of our environment and not of Father Time is well illustrated by a statistic. The age distribution of pedestrians killed at a certain road crossing in Europe was found to be almost identical to that for the population as a whole, dying from all causes. Aging pedestrians are less likely to see or hear oncoming cars, less able to jump out of the way, and less able to recover if hit. Similarly, the increase in susceptibility to disease and the decrease in recuperative powers which characterize aging increase the probability of succumbing to disease to about the same degree.

When Does Aging Begin?

In the broad sense aging is occurring at every chronological age and we begin to die before we are born. But aging as defined here begins after about 30 years of life in the human. Little information is available on changes with age in the same individual but much can be inferred from measurements of physiological functions in different age groups.

A graph of maximum work rates which plots average values for men of different ages reveals an abrupt change from rising values up to about age 30 to declining values from then to age 67 (the oldest group included in the study—undoubtedly the decline continues to the time of death). Other measures of physiological capacity indicate that although the reversal from improving to deteriorating is not simultaneous in all organs, it is fair to make the generalization that the human organism is normally at its physiological peak at about age 30.¹⁰ Beyond that age the long-term trend physiologically is inevitably downward. The best we can do is to try to avoid pathological aggravation and acceleration of involutonal processes and combat physiological aging. Chronological and physiological aging are unavoidable, but if we can accept the fact gracefully and "think young" it does not matter too much.

Putting it another way, aging is an excess of catabolism over anabolism and we may say it begins in a tissue, organ or the whole organism when destruction assumes a permanent domination over construction. Korenchevsky points out that atrophic changes of organs and tissues were recognized long ago as the most typical features of senescence and senility and mentions that Warthin defines old age as a major involution of the living organism.⁸ Growth, development and perfection of the body machinery normally dominate during approximately the first 30 years of life, after which involutonal processes become dominant.

Physiological Signs of Aging

Both physiological and pathological aging lead to physiological deterioration. Some physiological variables show statistically significant age decrements even in the resting individual. For example, there are reductions in renal blood flow, basal metabolic rate, cardiac output, nerve conduction velocity and pulmonary functions. Other measures such as blood pH, plasma glucose or blood volume may fail to show a difference between young and old unless the subject is in a stressful situation, such as exercise, hemorrhage, etc. Then marked age differences may be noted both in the degree to which these values are changed and the rate at which restoration to normal levels takes place after the stress is removed. It is in the *rate* of physiological responses that the signs of aging are particularly apparent, rather than in their quality. In the examples cited it is the rate of response of the error-triggered, goal-seeking servomechanisms that comprise the homeostatic machinery of the body that is concerned. But the slowing that is noted in them is but part of the general slowing of physiological activities.¹¹

A more specific example of the slowing of homeo-

static mechanisms in the aging may be useful. If blood pH is lowered by oral administration of ammonium chloride, recovery-to-normal occurs in six to eight hours in a young man. A similar error in a man of 70 is corrected only after 36 to 48 hours, indicating a six-fold reduction in rate of the homeostatic processes involved. The kidneys of the older individual are able to rid the blood of acids and other metabolic wastes as thoroughly as they ever could but require much more time to do so.¹⁰

Loss of muscle strength and a reduction of maximum rates of work for brief periods are prominent physiological signs of aging. Average values for maximum force of the hand grip decline about 45 per cent between the ages of 30 and 70. Probably the most important factor in this is the death of muscle cells which cannot be replaced. But the defect must be called neuromuscular since the number of fibers found in nerve trunks shows an average reduction of about 37 per cent in the same period.¹⁰ Loss of their trophic support of muscle cells is an important factor contributing to their death. Space formerly occupied by the muscle cells that were lost is likely to be filled with collagen fibers. Older collagen present as a binder between muscle cells is likely to become calcified to some extent. Thus, impediments to shortening further reduce the capacity for contraction which is already reduced by loss of cells.

Slowing of homeostatic mechanisms is of relatively little importance in the decrements indicated in the preceding paragraph, but becomes quite important in the ability to perform sustained work. Sustained muscular activity must be reduced in the elderly to a level which decreases the consumption of nutrients and oxygen and the production of metabolic wastes to a rate compatible with the diminished rates at which the homeostatic mechanisms operate. Vigorous exercise depletes the materials which furnish energy for muscle contraction and causes metabolic wastes to accumulate because the processes involved in supply and elimination are unable to keep pace. This is true in both young and old. In the older person earlier curtailment of such exercise is enforced by the fact that these processes are slower and the limits compatible with continuation are reached sooner.

Cardiovascular and respiratory declines which accompany aging are of signal importance in the homeostatic slowing. The average cardiac output is reduced by about one third between age 35 and 75. The total lung capacity remains undiminished at 75 but less than 60 per cent of it remains available for use, whether measured as vital capacity or as maximum ventilatory volume during exercise. The older individual cannot breathe as rapidly as he could when younger because of a general decline in neuromuscular capacity. Oxygen diffusing capacity in the lungs also

declines. The maximum oxygen-uptake at 75 averages about 40 per cent of the maximum at 30.¹⁰

Activities of the nervous system which involve complex systems of neurons and many synapses suffer more with age than do simple spinal reflexes, which may be relatively unimpaired in later years. Thought processes become slower, recent memory defective. It takes longer for the elderly person to decide on a course of action, and longer to plan and execute it. Little of this decline in the functional capacity of complex neural systems can be attributed to slower conduction of impulses over nerve fibers. Conduction velocity is reduced by only about 10 per cent between ages 30 and 75. Part of the impairment is secondary to impairment in other systems. The blood flow to the brain falls by about 20 per cent between the two ages mentioned. The general basal metabolic rate falls about 16 per cent in the same period.¹⁰ Irreplaceable neurons die, leaving those which remain less richly supplied with synaptic terminals. This reduces the rate of central summation, thus lengthening central nervous system input-output delay.

Verzár mentions a number of other signs of functional loss in the nervous system. Mental deterioration is often the chief symptom in human aging and does not necessarily parallel the decline in other systems. Individual neurons and simple reflexes show little impairment of function with age but experimental psychology reveals a notable decline in learning and memory. Maze-learning is much faster in young than in old rats. Still greater differences exist between young and old rats in the ability to remember. However, some aged rats learn quickly and remember well. Postmortem histological studies indicated that rats with more defective memories had suffered a greater loss of cortical neurons.¹²

Verzár gives some data relative to aging in the sensory sphere. Taste thresholds rise and he attributes this mainly to a reduction in the number of surviving taste buds. (Shock reports a reduction of about 64 per cent in the number of taste buds in the human between ages 35 and 75.¹⁰) The sense of smell becomes less acute in the aged and a decrease in the number of neurons in the olfactory system has been shown. The cutaneous touch threshold rises with age. Losses are suffered in the kinesthetic sense, vibration sense, and in weight discrimination. Age decrements in hearing are due partly to ossification, partly to a loss of auditory nerve fibers and endings in the organ of Corti. Perhaps senses of greatest importance to survival of the organism are slower to age, since Verzár indicates that his experimental animals showing age-impaired sensory function showed no age difference with respect to pain and temperature.¹²

Sensory aging is not entirely at the receptor or

afferent fiber level. Verzá¹² points out that sensory changes are among the most obvious and experimentally well established changes which occur in aging. He attributes the deterioration of sense organs to the aging of connective tissue, mainly collagen, and aging of nerve cells. It should be remembered that the brain, as well as its sensory outposts, shows age deficiencies which must contribute to deficits in sensation and perception just as they do to sluggishness of motor responses.

It is probable that at least some of the changes which occur in surviving nerve cells in aging animals detract from their capacity to function. For example, Lansing² reports that swelling and rupture of mitochondria are common in neurons of aged animals. Such destruction of the "power plants" of these cells should certainly be detrimental to their function. Age pigment (lipofuscin) has been reported by many. If such pigment represents metabolic "clinkers" as many suspect, they may interfere with cellular function. Actually it is not certain that "age pigment" is an appropriate appellation. Many tissues that are clearly aged possess none and it has been shown experimentally that deposition of such pigment can be induced in young animals without aging them. The source of the pigment is not known. Faulty fat metabolism may play a part. Lansing believes the pigments are formed of degenerating mitochondria. Sulkin says the breakdown of the Golgi apparatus always occurs in nerve cells of aging animals and believes the pigment deposition results from such breakdown.²

The loss of vitality, or capacity to cope with stress, which constitutes aging is really the same thing as the functional deterioration discussed in this section (incompletely). "Coping with stress" is what our physiological mechanisms are always doing. When they become defective their capacity to cope declines. Stresses formerly inadequate to tax the machinery enough to damage it may become adequate as we grow older, permitting the ratio of pathological to physiological aging to rise.

Basic Cause(s) of Aging

The universality of aging and death in all but the lowest members of the animal kingdom has naturally led to the search for a fundamental cause common to all. It appears that it ought to be something that operates at the cellular level.

Different kinds of mammalian cells differ greatly in their aging rates and life spans. On this basis Cowdry (cited by Korenchevsky⁸) divided them into four groups: (1) Vegetative intermitotics, which serve as a reservoir of relatively undifferentiated cells which reproduce themselves regularly and freely and which can give rise to differentiating intermitotics.

Examples are basal cells of the epithelium of the skin, spermatogonia, red bone marrow cells, and fibroblasts. (2) Differentiating intermitotics, which like the vegetative intermitotics reproduce themselves regularly and have their life span limited to the interval between two mitoses. Neither of the first two groups can be said to age in the usual sense or to die. They simply live from one mitosis to the next, when each divides to form its own daughters. The ultimate usefulness of all somatic intermitotics is to serve as a source of the specialized cells which perform the functions of the body. Examples of differentiating intermitotics are the intermediate cells between spermatogonia and spermatocytes and those intermediate between red bone marrow cells and erythrocytes. (3) Reverting postmitotics, which generally age and die but are capable of reverting to intermitotics capable of dividing. Cells of most glands, such as the liver, kidneys, endocrine glands, and possibly some skeletal muscle cells, belong to this group. (4) Fixed postmitotics are cells which have reached the highest level of differentiation and specialization. They age and die. Included in this group are neurons, retinal rods and cones, cardiac muscle cells, erythrocytes and granular leucocytes.²

It is the aging and death of the last group, the fixed postmitotics, which constitute the basic aging of the mammalian organism. More precisely, it is the aging of the postmitotics which are irreplaceable. Ultimately it is the life span of the irreplaceable postmitotics which determines the potential life span of the organism. The short life spans of lymphocytes (about 24 hours), neutrophils (about 70-80 hours) and erythrocytes (around 120 days) have little bearing on the longevity of the individual because they are replaced from intermitotic reservoirs. (Many other cells have limited lengths of service but the life span of most of the body cells is not known.) Nerve cells, cardiac and skeletal muscle cells, on the other hand, are irreplaceable and the organism can survive no longer than adequate numbers of them survive. It has been estimated that the human brain loses at least 10,000 cells each day. Whatever the actual loss is, it is surprising that it is not greater because of the very high metabolic demands on neuron somata. An axon may have a mass a thousand times greater than the soma which maintains it.⁸

A venerable theory considers the loss of neurons as the "time-keeping mechanism" that determines the lifetime of the organism. Comfort states that it is the index of cephalization—the excess of brain over the expected amount—which correlates most closely with longevity both between species and breeds within a species. He says "Next to the biochemical information store in cell nuclei the central nervous system is our main and overriding homeostatic system. Since this is

so, if the deterioration of fixed postmitotics were the timing mechanism for mammalian senescence, the prospect of slowing it seems by no means hopeless, for the very diversity in the rate of aging between similar mammalian species suggests that the rate of spoilage might be accessible. When typical aging can be produced by experimental damage to the brain, one might be prepared to take this particular speculation further."³

The body dies a little every day. There is general agreement with Shock's statement to the effect that there is a direct correlation between the progressive loss of tissue and the functional decline of aging and that the loss of tissue has been shown in the disappearance of cells from muscles, the nervous system and many vital organs.¹⁰ Old cells may be difficult to distinguish but old tissue is characterized by a decrease in the number of parenchymal cells and an increase in interstitial substance.¹¹ Aging would seem to be synonymous with partial death.

What causes cells to age and die seems to be the fundamental question for gerontology. The genetic material surely must be implicated. The most promising theory of aging starts with this premise. Before discussing it, however, we should consider possible aging of intermitotics which are usually considered ageless.

Clonal Aging

Alexis Carrel's famous experiments demonstrated that fibroblasts taken from chick embryos could be kept growing and multiplying *in vitro* for more than 30 years. They were regularly fed by the addition of crude extract of chick embryos. It was widely accepted that such populations were immortal but it is probable that new, viable fibroblasts were introduced at each feeding.⁷

Normal cells removed from a mouse can provide a culture of cells which may have the capacity to perpetuate itself but only after undergoing "spontaneous" transformations that make them abnormal. A like phenomenon seldom occurs in cultures of fibroblasts of man or animals other than the mouse. When it does occur in human cells they are found to have 50 to 350 chromosomes instead of the normal 46, and to be abnormal in size, shape and staining properties. Inoculated into suitable laboratory animals such cells often act like cancer cells, forming tumors from which cells can be transplanted serially to other animals and perpetuate the colony. But no one has succeeded in perpetuating a colony of normal cells either as tissue cultures or transplants.⁷

Exceedingly interesting experiments have demonstrated that human fibroblasts taken from lung tissue of a four-month embryo can proliferate in a culture medium only until 50 ± 10 generations have been

produced. If put in cold storage such cultures cease to divide. After re-warming they seem to "remember" how many times they have doubled and resume until completing the allotted total of 50. Even after more than six years of suspended animation they "remembered." Fibroblasts from shorter-lived species behaved similarly, but had a lower limit on the number of doublings. The results indicate that some form of aging may occur during the propagation of a series of generations of cells (clonal aging).⁷

Before concluding that the human fibroblasts are intrinsically limited to 50 doublings it was necessary to demonstrate that some change in the medium did not kill them. It has been shown that the limit of 50 held for fibroblasts taken from either male or female embryos. Fortunately they are easily distinguishable microscopically by the sex chromosome (XX in the female, XY in the male). A given number of male cells which had undergone 40 doublings in the culture medium was placed in a vessel of medium with an equal number of female cells which had undergone only ten. After 10 doublings of the mixed culture few male cells remained and after 15 more the culture consisted of only female cells. There clearly appeared to be an age difference between the two populations which imposed different limits on their survival time in the same medium.⁷

Another possible intrinsic factor might conceivably account for the finite lifetime of these populations of self-reproducing cells. Perhaps every cell must contain a bit of something which was present in the original cell from which it is derived. After a certain number of divisions, this substance in the original cell would have been divided and re-divided and there would inevitably come a time when further division would be impossible without splitting the last remaining molecule of it. If essential as a constituent of the daughter cells they would fail to be produced. To test this hypothesis, calculations were made to determine whether a cell could possibly contain enough of a substance to provide each of the 50th generation offspring cells with at least one molecule of it. The results indicated that even if the hypothetical essential substance were the lightest element, hydrogen, and if the original parent cell were composed entirely of it, the cell would have to weigh at least three times as much as it actually does. This hypothesis for the finite limitation of cell doublings is therefore untenable.⁷

Whether fibroblasts *in situ* behave in the same manner as they do *in vitro* is not known. Until proof that they do not is forthcoming, clonal aging must be considered a possible factor in human aging. In the later generations of those studied in the laboratory, chromosome aberrations and defective division become increasingly common. Smaller and smaller frac-

tions of succeeding generations of cultured cells retain the capacity for division, and the same thing occurring in the organism would lead to deficient restoration of tissues composed of replaceable cells. The functional deficits accruing in the aging process would be greater than if due only to loss of "lifetime" cells.⁷

Theories of Aging of Cells

Many theories to account for aging have been proposed. Some of them will be surveyed here and one which seems to hold more promise than most will be considered in some detail. In my view, the theories can be placed in three categories: (1) Depletion of essential substance; (2) Accumulation of deleterious substance; (3) Damage to genetic templates. The major source material for this section is a book on *Biological Mechanisms of Aging* by Curtis.⁴

One of the early theories is the *wear and tear* or *rate of living* theory which was forcefully expressed by Pearl in 1924. It falls in the first category because in its modern version it is assumed that cells are endowed with certain amounts of vital substances such as essential enzymes which cannot be replaced. As they are depleted the cells become inefficient and soon die. It is probable that man's experience with mechanical devices which wear out is as much responsible as anything for the assumption that living organisms must do likewise. If the theory is correct, faster living should shorten life and there is some evidence that this is true. Hibernators live longer than non-hibernators, it is said, and it is presumed by supporters of the theory that this is due to the depression of metabolism during hibernation. Both men and mice expend around 700 calories per gram of body weight per lifetime. The mouse metabolizes at a rate 30 times that of man and lives 1/30 as long. Mice kept in the cold most of their lives increase their metabolism to keep warm and have shorter survival times.⁴

Many factors doubtless contribute to the shortening of life by overfeeding, in addition to the higher rate of metabolism it induces. In any case, life is shortened by very rich diets fed to protozoa, worms, insects, mice and rats, while survival is extended by diets restricted in calories but otherwise adequate.⁸

A variant of the wear and tear theory is Selye's *stress theory of aging*. It assumes that each individual is born with a certain amount of vitality which is gradually used up like spending one's inheritance. It suggests that each stress leaves a small residual deficit of "adaptation energy" and that aging is due to cumulative deficits. Curtis⁵ attempted to test this theory but found no form of stress, save one, that shortened the lives of his experimental animals. That one was whole body irradiation. He believes there is no

real evidence that disease *per se* leaves a residual deficit or causes aging. The stress theory of aging as expressed by Selye does not seem to have found many supporters.

The *waste product theory*, which is old and still has many adherents, postulates that some metabolic wastes are not readily excreted from cells or eliminated from tissue fluid and accumulate to poison the organism or to impede its functions. Lipofuscin (age pigment) is one of the foremost substances pointed to by adherents of this theory. It does accumulate in some cells during aging and seems to be insoluble. It may comprise 30 per cent of the weight of an old heart and may occupy a large fraction of the volume of the cytoplasm of some nerve cells. But as we mentioned earlier, many tissues in the aged have none and if experimentally produced in young animals does not shorten life. Curtis is of the opinion that the lipofuscin pigment is rather unimportant in aging.⁵

The *calcium theory* is based on the long known fact that calcium tends to be deposited in a number of the soft tissues of the body in old vertebrates. The common supposition has been that the shift of calcium from bone to soft tissues is a result, rather than a cause, of aging. But Selye, in 1960, postulated that senescence may be caused largely by a defect in calcium metabolism (his stress theory of aging was proposed a few years earlier). Experimentally, he found that rats which were given large doses of vitamin D or parathyroid hormone show calcium shifts resembling the calcification of old age. Rats so treated develop cataracts, brittle bones, wrinkled skin, etc. Curtis notes that the dosages of vitamin or hormone used by Selye were far in excess of anything which has been used therapeutically or which exists in the living animal. He states, further, that there is no evidence that even such overdoses shorten life and that many animals become very senescent without cataract formation or calcification of arteries or other organs.⁵ The theory fits in category 2.

Another theory in the second category is the *collagen theory*. Once formed, collagen fibers do not participate further in metabolic activity and are never renewed. Collagen comprises nearly 40 per cent of the protein of the body. It forms the matrix in which bone salts are deposited, is the substance of cartilage and tendon, the filler and stabilizing connective tissue between the cells of muscles and many other organs. It is the matting of collagen fibers in the corium that gives the skin its toughness and plasticity and which provides the substance of leather after tanning. The stiffness of joints as well as the leatheriness of the skin in the aged is probably related to the aging of collagen. Several tests have been devised which permit rather accurate assessment of the age of collagen.

Verzár has suggested that the aging of collagen, as measured by these tests, may provide an objective index for determining the "biological age," as distinguished from the "calendar age" of men and other animals.¹² Collagen certainly does show conveniently measurable age effects, but aging also occurs in organs which accumulate virtually no collagen. Many lower animals contain none at all, yet they age. The collagen of newly formed scar tissue is young collagen regardless of the age of the animal in which it is formed. Whole body irradiation with x-rays definitely shortens the life of rats but does not affect the aging of collagen; rats that died several months after exposure had tendons of the same "biological age" as control rats which had not been irradiated.^{12, 13} Certainly it cannot be agreed that collagen aging is a *sine quo non* for the aging of animals or that the collagen theory is adequate to explain the aging of man.

The *circulatory failure theory* of aging has the same objectionable feature possessed by any theory attempting to blame any particular organ or system. The interdependence among the organs of the body is such that the impairment of any of them may lead to more general impairment. We are looking for more basic causes which lead to the failure of cells. If the causes of aging of the cells of the heart, capillary walls, etc., can be pinned down it is highly probable that like causes lead to general physiological decline.

The *auto-immunity theory* postulates that aging results from immune reactions to "foreign" types of protein produced by the body's own cells. Such reactions are known to occur in aging, but the fundamental problem is what goes wrong to cause cells to produce proteins they did not formerly produce. Deterioration of genetic templates might do so and if so the auto-immunity theory would be one facet of the theory still to be discussed. Of all the theories which have been advanced, it seems to me that the somatic mutation theory must be considered the one of greatest merit.

The Somatic Mutation Theory

The unquestioned relation between heredity and aging makes it logical to suspect that the aging processes are gene-directed. Such direction might conceivably be due to hereditary factors present in the zygote but not expressed until a number of years have elapsed, after the fashion of those which determine the onset of puberty. On the other hand, aging might result from *misdirection* of chemical syntheses by genes which have themselves deteriorated with age. The latter appears more probable to many and random mutations in somatic cells seem to provide the best available candidate for the factor

causing the deterioration of genes with age. Curtis, in his 1966 book *Biological Mechanisms of Aging* said in this connection, "In reviewing the various theories of aging it appears to me that the somatic mutation theory has the most to recommend it at the present time."⁵

The hereditary message passed from generation to generation has great stability because it is written on very stable material which has a remarkable capacity for exact self-duplication. It is inscribed on the DNA (deoxyribose) molecule which has perfected the mechanisms for reproduction of structural specificity better than any other polymer of living matter. DNA is a polynucleotide in which many thousands of nucleotides are strung together in two long strands which are twisted about each other in the form of a double helix. Only four different nucleotides are present, but that is enough to provide a "code word" for each of the 20 amino acids used in synthesizing the proteins which comprise the basic structure of living matter and those which are the various enzymes used in its chemical activities. The serial order of amino acids in the proteins formed by a cell during its entire existence is determined by, and identical to, the order of the code words for them in the DNA comprising its genes. The initiation and cessation of formation of each kind of protein are signalled by other code words interspersed between those for amino acids.

A complete instruction manual for the lifetime activities of the cells of the organism is contained in the thousands of genes in the chromosomes of the fertilized ovum. A duplicate manual appears in each somatic cell that is derived from it. These cells differentiate as dictated by a portion of the hereditary store of information, the rest being blanked out. They differ in function because they differ in which portion of the genetic message retains the capacity to act. After differentiation each specialized cell's activities are controlled by unblanked portions of the genetic message in its nucleus for as long as it survives. If the immediate environment of the cell provides the raw materials it needs and permits the elimination of its wastes there seems to be no good reason that its capacity to carry out the activities required for its own maintenance and for the functions it performs should ever deteriorate unless the DNA itself deteriorates. Cells ought not to age.

Animals age because their cells do age and die and we seem drawn inescapably to the conclusion that the aging of cells must be the result of some time-dependent deterioration of chromosomes or their constituent DNA molecules. Verzár,¹³ in his book of lectures on experimental gerontology says "Thus aging of DNA may be the factor which leads to the aging of all those cells which do not undergo mitosis. . . ."

He suggests that it may possibly age by the accumulation of cross linkages between the two helices (such a mechanism is said to occur in the aging of collagen). Since it is necessary for the helices to diverge and expose their purine and pyrimidine triplets (code words) in order for their messages to be "read" (by messenger RNA) during protein synthesis, additional linkages would probably reduce their ability to pass on information. This would result in a decrease of anabolic processes such as protein synthesis and enzyme production, thus contributing to the excess of catabolism over anabolism which is aging.

However, most students of aging believe it more likely that *mutations* in somatic cells are chiefly responsible for the gradual weakening of the nuclear hereditary control of cytoplasmic syntheses which makes them functionally defective and short-lived. Such changes would be of slight importance in replaceable cells but might well accumulate in sufficient quantity to make irreplaceable cells quite defective over a period of years.

It is quite well established that animals subjected to whole body irradiation are rapidly aged thereby and their lives are shortened. This is believed due to damage to nuclear hereditary material. Curtis⁵ says, "Thus, for all types of radiation and radiation regimes, the degree of life shortening is quantitatively related to the amount of chromosomal damage produced by each. It would be a rare coincidence if there were not a causal relation between them."

A serious problem in studying the relation of spontaneous mutations to aging in animals is the fact that there is no way of measuring the mutations in the lifetime cells. There is no reason to doubt, however, that they may occur in any cell. Curtis suggests that in cells which seldom or never divide the mutations may gradually increase in number until virtually every cell in some mammalian organ has a damaged set of chromosomes.⁵

Most of the evidence relating mutations to aging is derived from studies based on experimental irradiation. Whether radioactive substances in the earth, cosmic rays or other radiation is responsible for spontaneous mutations is not clear. Nor is it certain that spontaneous mutations occur often enough to cause damage adequate to account for the rate of physiological aging. One of the major proponents of the somatic mutation theory felt that he probably destroyed his own theory when he put it to experimental test. But the interpretation of the test was based on his assumption that somatic cells should mutate at the same rate as germ cells (whose rate could be ascertained) and this is not necessarily true.

Despite its shortcomings, the somatic mutation theory of aging is still the most promising one that has been proposed. If it is proved to be correct, we shall

probably have to agree that it is the impact of detrimental influences of the environment on the organism that is responsible for aging, as it usually is for death at any age. Instead of attributing the functional decline of physiological aging to a purely intrinsic mechanism in the organism it will have to be attributed to the interaction between intrinsic and extrinsic forces. Why not? After all, life is a continuous interaction between an organism and its environment.

References

1. Best, Charles H. and Taylor, Norman B.: *The Physiological Basis of Medical Practice*. Baltimore, Williams and Wilkins, 1966.
2. Birren, James E.; Imus, Henry A. and Windle, William F.: *The Process of Aging in the Nervous System*. Springfield, Charles C Thomas, 1959.
3. Comfort, Alex.: *Ageing—The Biology of Senescence*. New York, Holt, Rinehart and Winston, 1964.
4. Curtis, Howard J.: Biological mechanisms underlying the aging process. *Science* 141:686-694, August 1963.
5. Curtis, Howard J.: *Biological Mechanisms of Aging*. Springfield, Charles C Thomas, 1966.
6. Radiation and Aging, a synopsis of panel discussions. *Fed. Proc.*, Vol. 20, No. 2, Part II, Suppl. 3, July 1961.
7. Hayflick, Leonard: Human cells and aging. *Sci. Amer.* 218:32-37, March 1968.
8. Korenchevsky, V.: *Physiological and Pathological Ageing*. New York, Hafner, 1961.
9. Medvedev, Z. A.: Aging of the organism at the molecular level. Washington, National Institutes of Health, 1962.
10. Shock, Nathan W.: The physiology of aging. *Sci. Amer.* 206:100-110, January 1962.
11. Strehler, Bernard L. (ed.): *The Biology of Aging*. Washington, AIBS, 1960. (A symposium)
12. Verzár, Frederic: The aging of collagen. *Sci. Amer.* 208:104-114, April, 1963.
13. Verzár, Frederic: *Experimental Gerontology* (lectures on). Springfield, Charles C Thomas, 1963.

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Relieving Intractable Pain

The Use of Percutaneous Cordotomy in the Management of Pain

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Introduction

IN 1963 MULLAN, *et al.* first reported on the use of a percutaneous method for the destruction of the lateral spinothalamic tract in man for the management of pain. Prior to this time spinothalamic tractotomy had required cervical or thoracic laminectomy for the exposure of the spinal cord, with section of the ventro-lateral quadrant of the cord accomplished under direct vision. Although this method was, and is quite effective, the necessity of a major operative procedure was often more than the debilitated cancer patient could tolerate. With the advent of a percutaneous method the procedure became available to all types of patients.

The spinothalamic tract was first described by Edinger in 1889, but its function was not known until Spiller in 1905 reported a case of tuberculomas in the anterior quadrants of the spinal cord producing loss of pain and temperature. At Spiller's suggestion the first cordotomy or spinothalamic tractotomy was performed by Martin in 1912. The operation was perfected by Frazier in this country and although further refinements have been made by others the procedure has remained essentially unchanged.

Walker in 1940, and later Crosby and others, have shown by degeneration studies that the position of the secondary sensory fibers transmitting pain and temperature have certain anatomical relationships with the dentate ligament and emerging fibers of the ventral roots. As seen in *Figure 1*, the sacral and lumbar fibers are predominately located in the dorso-lateral position of the anterior quadrant, whereas the majority of axons from thoracic and cervical levels are more medially and ventrally located. Strictly speaking, anterolateral cordotomy is not synonymous with spinothalamic tractotomy since many spinoreticular and spinotectle fibers are present in the anterior quadrants. However, section of these fibers produces little in the way of neurological deficit in most, with

exception of the respiratory and bladder deficits which will be described later.

Technique

The awake patient lies supine with the head immobilized in a head support on a roentgen-ray table arranged for biplane radiography of the high cervical spine. After local skin preparation and anesthesia, a

The use of percutaneous cordotomy for the relief of pain is presented. A series of 89 cordotomies is reviewed, and the results presented. Percutaneous cordotomy appears to be an excellent adjunct in the short term management of intractable pain.

#18 thin wall needle is inserted just below the mastoid tip and directed medially. By utilizing antero-posterior and lateral films, the needle is guided into the large foramen at the C₁-C₂ level. There is a definite flick of pain as the needle punctures the dura and the stylet is then removed to confirm the needle being in the subarachnoid space by a flow of spinal fluid. A half cubic centimeter of pantopaque is then

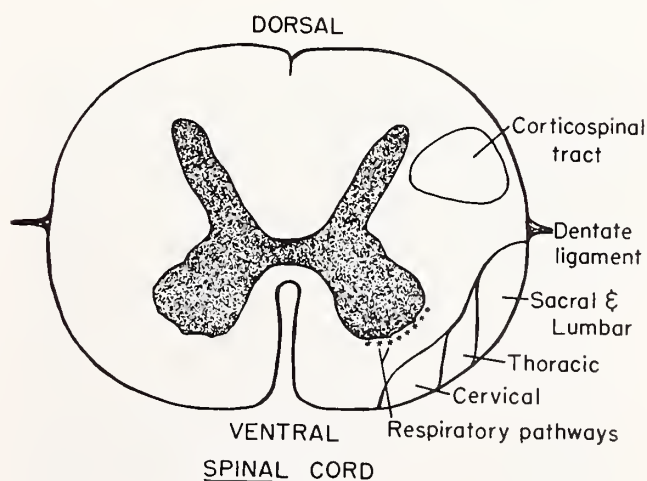


Figure 1

* From the Department of Surgery (Section of Neurological Surgery), Kansas University School of Medicine, Kansas City, Kansas, and the Department of Surgery (Section of Neurological Surgery), Kansas City Veterans Administration Hospital, Kansas City, Missouri.

injected to outline the dentate ligament, and the direction of the needle confirmed (*Figure 2*). A stainless steel insulated electrode is then passed through the spinal needle and directed into the ventral quadrant of the cord. Again, the patient will experience a fleeting flick of pain as the electrode pierces the pia mater. Single or multiple radiofrequency lesions are then produced within the spinal cord. While the electrical lesion is being generated the patient will experience some discomfort which lasts 15 to 20 seconds. The onset of analgesia in the desired areas has been somewhat variable but usually appears within seconds and rarely progresses after one or two minutes. With the patient awake and cooperative, a desired level of anesthesia can be obtained, and if any complications, such as weakness, occur they can be minimized or the procedure terminated.

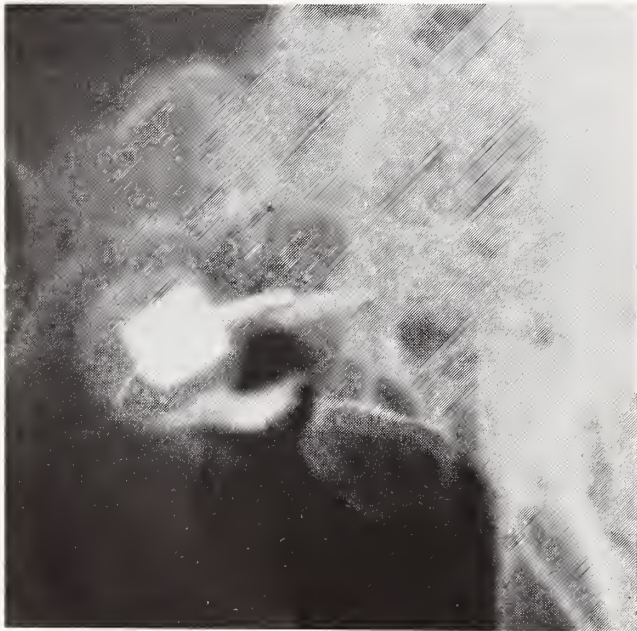


Figure 2

Results

We have now performed 89 cordotomies in 81 patients. We have attempted one bilateral lesion using a slightly different technique and seven patients have had re-operations because of failure to obtain adequate relief with the first attempt. Seventy patients experienced essentially total relief of pain, five patients had partial relief and there were six failures (*Figure 3*).
The long-term results of this procedure are difficult to determine since most of the patients succumb of their primary disease within a few months. It is probable that recurrence of pain would be similar to those in whom an open cordotomy has been done. In long-term follow-up of these patients it is well known that pain may recur and it is thought that multisynaptic

Area	Relief in 89 Cordotomies			Total
	Complete	Partial	No	
C ₄ -C ₈	9	3	4	16
T ₁ -L ₁	4	-	-	4
L ₂ -S ₅	57	2	2	61
Total	70	5	6	81

Figure 3

pathways in the cord are developed, by which pain is conducted.
One death attributable to the procedure occurred in this series, and we feel this low mortality is secondary to restriction to unilateral lesions.
As seen from *Figure 4*, most of the procedures were done for pain of malignant disease and most of these were done for unilateral pelvic or extremity pain. In only four patients was the pain of thoracic origin. Those in the cervical area were primarily pulmonary sulcus tumors with invasion of the brachial plexus. It was within this group that the greatest number of failures occurred.
Motor weakness was divided into three grades. Grade 1 represented a feeling of weakness by the patient but was not detectable by examination. Grade 2 was weakness significant enough to be detectable, and Grade 3 represented total paralysis.
Twenty-two patients experienced some degree of weakness; however, in only four was this present several weeks later. In two of these it was a persistent hemiplegia. A temporary loss of urinary sphincter occurred in four patients, one of whom had had previous bilateral procedures. Respiratory loss was present in one patient and this patient required the use of a ventilator for assistance for four days after the procedure.

Discussion

The technique of percutaneous cordotomy has afforded the neurosurgeon a simple but effective device for the control of intractable pain, particularly when the pain is unilateral and of pelvic or lower extremity origin. Bilateral high cervical cordotomies are known to be hazardous since important respiratory pathways are often interrupted and the patients show a rather peculiar loss of involuntary respiration and hence become anoxic during sleep. The present method utilizing the C₁-C₂ interspace does limit the operator to a unilateral approach. More recently, other workers have utilized an anterior approach in the lower cervical areas to avoid the respiratory pathways

Area	Malignant	Benign
C ₄ - C ₈	10	2
T ₁ L ₁	3	1
L ₂ S ₅	56	3

Figure 4

and thus a bilateral destructive lesion can be utilized. Since the majority of those afflicted by unbearable pain of malignant disease below the level of the high cervical rootlets can be relieved, we recommend percutaneous cordotomy when discomfort begins to require narcotics for control.

References

1. Frazier, C. H.: Section of the anterolateral columns of the spinal cord for the relief of pain. A report of six cases. *Arch. Neurol. Psychiat.* (Chicago), 4:137-147, 1920.

2. Mullan, S., Harper, P. V., Hekmatpanah, J., Torres, H. and Dobben, G.: Percutaneous interruption of spinal-pain tracts by means of a Strontium needle. *J. Neurosurg.* 20:931-939, 1963.

3. Mullan, S., Hekmatpanah, J., Dobben, G., and Beckman, B. A.: Percutaneous, intramedullary cordotomy utilizing the Unipolar Anodal Electrolytic Lesion. *J. Neurosurg.* 22:548-553, 1965.

4. Nathan, P. W.: The descending respiratory pathway in man. *J. Neurol. Neurosurg. Psychiat.*, 26:487-499, 1963.

5. Spiller, W. G.: The occasional clinical resemblance between caries of the vertebrae and lumbosacral syringomyelia, and the location within the spinal cord of the fibers for the sensations of pain and temperature. *Univ. Penn. Med. Bull.*, 18:147-154, 1905.

6. Spiller, W. G., and Martin, E.: The treatment of persistent pain of organic origin in the lower part of the body by division of the anterolateral column of the spinal cord. *JAMA*, 58:1489-1490, 1912.

7. Walker, A. E.: The spinothalamic tract in man. *Arch. Neurol. Psychiat.* (Chicago), 43:284-298, 1940.

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(Continued from page 104)

2. Boyd, H. S. and Sisney, V. V.: Immediate self-image confrontation and changes in self-concept. *J. Consult. Psychol.* 31:291-294, 1967.

3. Cornelison, F. S. and Arsenian, J.: A study of the response of psychotic patients to photographic self-image experience. *Psychiat. Quart.* 34:1-8, 1960.

4. Cornelison, F. S., Jr. and Tausig, T. N.: A study of self-image experience using videotapes at Delaware State Hospital. *Delaware Med. J.*, 36:229-231, 1964.

5. Fiedler, F. E.: A comparison of therapeutic relationships in psychoanalytic, non-directive and Adlerian therapy. *J. Consult. Psychol.* 14:436-445, 1950.

6. Geertsma, R. H. and Reivich, R. S.: Repetitive self-observation by videotape playback. *J. Nerv. Ment. Dis.* 141:29-41, 1965.

7. Greertsma, R. H. and Reivich, R. S.: Auditory and visual dimensions of externally mediated self-observation. *J. Nerv. Ment. Dis.* In press, 1969.

8. Geocaris, K.: The patient as listener. *Arch. Gen. Psychiat.* 2:81-88, 1960.

9. Holzman, P. S.: On hearing and seeing one's self. *J. Nerv. Ment. Dis.* In press, 1969.

10. Moore, F. J.; Chernell, E. and West, M. J.: Television as a therapeutic tool. *Arch. Gen. Psychiat.* 12:217-220, 1965.

11. Paredes, Alfonso: A study of the reaction of psychiatric in-patients to videotape self-image experience. Paper read at Symposium on Self, Self-Image, Self-Concept and Self-Confrontation sponsored by the Department of Psychiatry, Jefferson Medical College, Philadelphia, December 3, 1966.

12. Reivich, R. S.: Teaching, treatment and research in a therapeutic community. *Hosp. & Comm. Psychiat.* 17:59-62, 1966.

13. Reivich, R. S. and Geertsma, R. H.: Experiences with video-tape self-observation by psychiatric in-patients. *J. Kansas Med. Soc.* 69:39-44, 1968.

14. Reivich, R. S. and Geertsma, R. H.: Observational media and psychotherapy training. *J. Nerv. and Ment. Dis.* In press, 1969.

15. Renneker, E.: Microscopic analysis of sound tape. *Psychiatry* 23:347-355, 1960.

16. Ruhe, D. S.; Gundle, S.; Laybourne, P. C.; Forman, L. H.; Jacobs, M. and Eaton, M. J.: Television in the teaching of psychiatry: Report of four years preliminary development. *J. Med. Educ.* 35:916-927, 1958.


17. Stoller, R. J. and Geertsma, R. H.: The consistency of psychiatrists' clinical judgments. *J. Nerv. and Ment. Dis.* 137:58-66, 1963.

18. Wittson, C. D. and Dutton, R. C.: A new tool in psychiatric education. *Ment. Hosp.* 7:11-14, 1956.

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Preventing Arthritic Deformities

Rheumatoid Arthritis of the Hand: Management by Current Surgical Techniques

LYNN D. KETCHUM, M.D., DAVID W. ROBINSON, M.D., and
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RHEUMATOID DISEASE of the hand often presents a myriad of problems affecting bone, joint, tendon, muscle and ultimately the balance and function of the hand.

Twenty-five years ago, physicians watched the destructive effects of the disease relentlessly progress to a hopelessly crippling deformity. The development of symptomatic therapy such as paraffin baths and functional splints prevented atrophy from disuse and probably slowed the progress of deformity, but the underlying disease process which characteristically first produced synovial hypertrophy and ultimately destruction of bones, joints and tendons, etc. was untouched.

The development and utilization of anti-inflammatory agents often delayed or arrested the disease process, but these results were usually temporary, and in most cases the disease process was not stopped.

As hand surgery developed, attention was directed to rheumatoid hand deformities, but not until the disease was "burned out." By then, the deformity was so severe that little function could be preserved. The early surgical procedures consisted of fusion of the unstable joints to prevent pain, to improve function through stability, and to make the hand more cosmetically acceptable.

Surgical procedures in the proliferative phase of the disease were thought to be contraindicated for fear of accelerating the disease process. Recently, more aggressive surgical measures have been found to be rewarding. Early removal of the involved synovial villi accomplishes three things: first, it prevents the erosion of tendon and rupture of the supporting ligamentous structures around joints (*Figures 1, 2, 3, 4*). Second, the disease process rarely recurs when the synovial tissue has been removed. Third, relief of pain is another important benefit. Presently, synovectomy is feasible at the level of the wrist joints and metacarpophalangeal (MP) joints, where adequate surgical exposure can be obtained and postop-

erative joint stability can be maintained. To date, this is not true for the proximal interphalangeal (PIP) and distal interphalangeal (DIP) where both exposure and stability are compromised.

In addition to synovectomy during the proliferative phase of the disease, there is a definite place for early reconstructive procedures to prevent the deformities from compounding themselves. This is im-

The patient with rheumatoid arthritis presents many complex hand problems. The common deformities such as hypertrophied joints and tendon sheaths, ulnar deviation, Swan neck and Boutonniere deformities, unstable painful joints, mallet finger and ruptured extensor tendons are discussed as regards pathology and treatment. Early surgical intervention of proliferative rheumatoid disease is advocated to prevent disability and deformity. Reconstructive procedures to correct instability of the finger joints, intrinsic plus deformities, ulnar drift of the fingers and tendon repairs help greatly to improve function and appearance and to alleviate pain for patients with more advanced rheumatoid disability.

portant in the ulnar drift of the fingers (*Figure 5*) and in the typical swan neck recurvatum deformity of the PIP joint following contracture of the intrinsic muscles of the hand.

Secondary involvement of the intrinsic hand muscles, probably the result of spasm from pain and subsequent fibrous replacement and atrophy, is quite common. The normal function of these muscles is at first exaggerated and the fingers assume an attitude of flexion at the MP joint and hyperextension at the PIP joint. This produces the classical intrinsic plus deformity, in distinction to the flaccid intrinsic minus

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Figure 1. Synovial hypertrophy about the tendons and joints of the wrist. The patient was referred in with a diagnosis of bilateral ganglions and had evidence of a carpal tunnel syndrome bilaterally.



Figure 2. The synovial hypertrophy found on exploring the wrists in this patient.

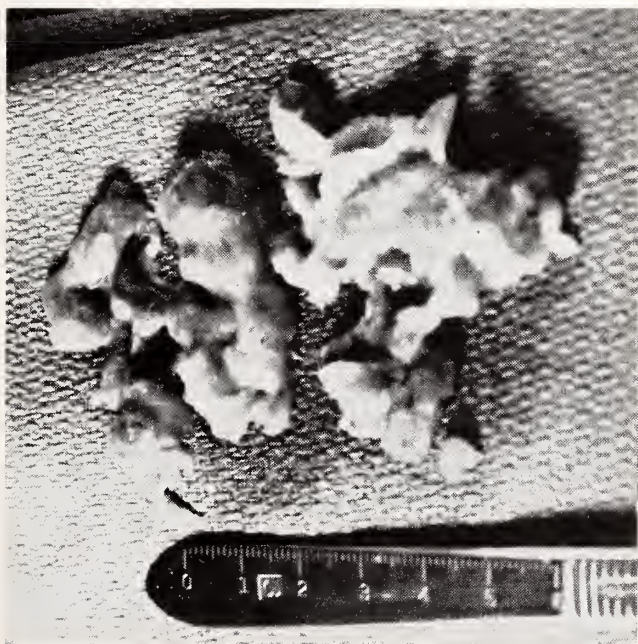


Figure 3. The hypertrophied synovial tissue excised from the right wrist. This will produce the same results as any growing mass in a confined space.

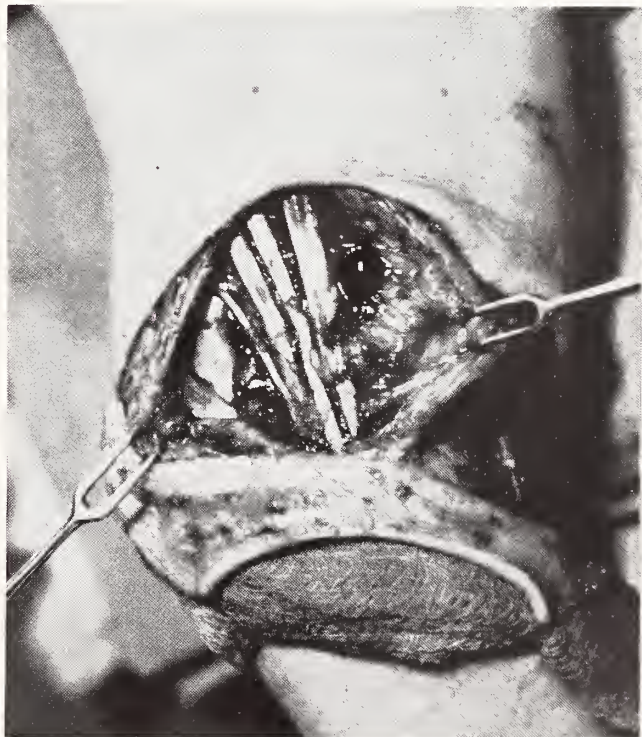


Figure 4. The same patient (as in *Figure 5*) following carpal synovectomy. Note the erosions of the tendons, several of which required reefing to strengthen them.

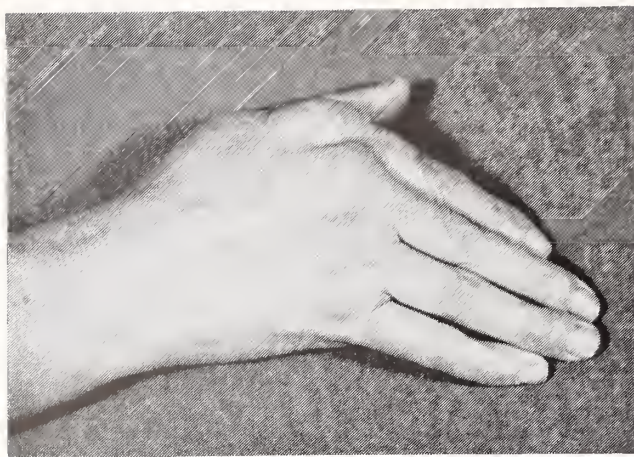


Figure 5. Ulnar drift that is typically seen in these patients in addition to the intrinsic positive deformity.

deformity or claw hand resulting from median and ulnar nerve palsy.

The intrinsic plus deformity can occur in a relatively short period of time, and cannot be corrected



Figure 6. The proposed operation to correct the intrinsic plus deformity to allow intrinsic muscle excursion and ulnar drift. In essence, the heads of the metacarpal bones are excised sufficiently, as much as 2.5 cm if necessary. The extensor communis tendons, which have drifted ulnarward, are relocated on the center of the MP joints. The extensor indicis proprius and extensor digiti quinti tendons are sectioned at their ulnar attachment on the dorsal aponeurosis and reattached on the radial aspect of this structure.

by splints or anti-inflammatory agents. When contracture occurs, the pathologic shortening of intrinsic muscles upsets the functional balance of the hand, and the only solution is to alter the excursion of these muscles so that they function as though they were longer. The most effective way of accomplishing artificial lengthening is to resect approximately 2.5 cm of the distal aspect of the metacarpal. By smoothing the end of the bone and preserving the cartilaginous surface of the base of the proximal phalanx, MP joint function can be maintained (Figures 6, 7). The bone shortening procedure by producing the effect of lengthening the intrinsic muscles, allows active and passive flexion at the MP joint and the IP joint. At the same time that the metacarpophalangeal arthroplasty is performed, the extensor tendon which may have drifted ulnarward is transposed to the radial aspect of the dorsum of the MP joint, and a tuck is taken in the loose redundant joint capsule on its radial side.

If the PIP and DIP joints are involved, there is currently no effective surgical therapy in the acute phase of the disease. Intra-articular injections with



Figure 7. The desired effect after the procedure (in Figure 6) has been carried out.



Figure 8. The postoperative appearance of this patient with correction of ulnar drift and restoration of good pinch which was previously not possible because of the ulnar drift.

anti-metabolites and anti-inflammatory agents have been carried out on an experimental basis for the last few years, but there are no conclusions as yet regarding this modality of treatment.

When there is evidence of deformity in these joints such as rupture of the central slip with Boutonniere deformity at the PIP joint or mallet finger deformity at the DIP joint from rupture of the distal insertion of the extensor mechanism, the procedure of choice is arthrodesis in a functional position if the deformity is disabling.

Ruptured tendons, usually extensors to the ring and little fingers, are most frequently torn at the level of the carpal radio-ulnar joint. They can and should be repaired, but the degenerated tissues, such as hypertrophied tendon sheath and a sharp, outstanding ulnar styloid process, must be treated by excision first. If these structures can be dealt with prophylactically before tendon rupture, much disability is avoided. Since tendon repairs necessarily require a period of immobilization of the hand and the joints do not tolerate a prolonged period of immobilization, early synovectomy may prevent the necessity of tendon repair.

Rheumatoid nodules frequently occur on tendons near tendon pulleys, producing trigger fingers. These are effectively managed by intralesional injection of Triamcinolone (a long acting corticosteroid).

References

1. Bunnell, Sterling: Surgery of the rheumatoid hand. *Jr. Bone & Joint Surg.* 37A:759-766, 1955.
2. Fowler, S. B. and Riordan, D. C.: Surgical treatment of rheumatoid deformities of the hand. *Trauma of Bone & Joint Surg.* 40A:431-432, 1958.
3. Anderson, E. D. and Lipscomb, P. R.: Surgical treatment of rheumatoid hand. *JAMA* 175:431-436, 1961.
4. Adamson, J. E.: The treatment of intrinsic contracture of the rheumatoid hand. *Jr. Pl. & Recon. Surg.* 42, 6:549-556, 1968.
5. Flatt, A. E.: *Care of the Rheumatoid Hand*. St. Louis, Mo., C. V. Mosby Company, 1963.

Psychiatric Clerkship

(Continued from page 105)

is in "absentia parentis." In the book *The American University*, Jacques Barzun charges that "a big corporation has replaced the once self-centered company of scholars and has thereby put itself at the mercy of many publics." New Republic contributing editor James Ridgeway, in *The Closed Corporation*, puts the case more brusquely: "Most Americans believe that universities are places where professors teach students. They are wrong. In fact, the university looks more like a center for industrial activity than a community of scholars."

Conclusion

Any program should concern itself with the what, how, when, who, where and why of the educational process. Of these, the answers to the last two questions "where," that is, the medical school, and "why," since the student applied to the medical school to become a doctor are obvious. However, medical education should provide the student with the opportunity to determine what kind of doctor he wants to be. So, the medical school is concerned with providing the student with experience in which the first four questions can be approached in a meaningful way. This paper offers some answers to these questions:

What?—information that is relevant to his future role as a physician.

How?—at preceptorial level providing him an opportunity to participate in the clinical situation "as it really is."

When?—the answer to this question is beyond the scope of this paper since psychiatric clerkship experience has to be seen within the context of the totality of the medical student's experience in his school.

Who?—an experienced teacher who delights in his work, has love for his students, and pride in his role as a teacher.

It appears that the "who" and "how" of the teaching process are probably even more significant and important than the "what," for if any errors are made in the "what" area they can be quickly rectified by teachers who are resilient and resourceful.

References

1. Gaitonde, M. R.: Clinical psychiatric training. *J. Kans. M. S.* 64:98-100, March 1963.
2. Gaitonde, M. R.: A technique for teaching interviewing skills. *J. Kans. M. S.* 64:121-124, March 1964.

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Acute Renal Failure

Etiology, Pathogenesis and Recovery

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ACUTE RENAL FAILURE remains one of the most dramatic and poorly understood emergencies in medicine. The incidence of this entity continues to be of clinical significance, related in part to the use and abuse of an ever-increasing number of nephrotoxic agents and in part to renal ischemia resulting from trauma and prolonged, complex, surgical procedures or obstetric labor. When the renal insufficiency is the result of acute renal tubular necrosis the mortality often exceeds 50 per cent. While the recent development of peritoneal and hemodialysis procedures have greatly aided the treatment of acute renal failure, the understanding of the pathogenesis of the renal insufficiency and the ability of the kidney to recover following renal failure remains uncertain.

Definition and Etiology

Acute renal failure may be defined as a rapid and progressive loss of renal function associated with a derangement in biochemical homeostasis. Clinically, this involves oliguria to a volume of less than 400 ml of urine excretion per 24 hours with a concurrent elevation in blood urea nitrogen.

From a clinical and diagnostic viewpoint the cause of acute renal failure may be divided into prerenal, intrinsic renal, and postrenal categories. Prerenal failure involves inadequate circulation to the kidney with resultant decrease in urine volume, but without intrinsic damage to the kidney. This category includes instances of hemorrhage with shock, crush injury, severe dehydration, acute heart failure, severe burns, and extensive surgery.¹⁻⁶ Postrenal failure relates to obstructive uropathy and includes ureteral or bladder obstruction due to ligation, calculi, hemorrhage, neoplasms, stricture and prostatic hyperplasia.^{2, 7, 8} Both pre- and postrenal failure are often associated with curable lesions and therefore should be rapidly diagnosed and treated. Either, if allowed to continue, may result in significant damage to the nephrons of the kidney and to intrinsic renal failure.

Intrinsic renal failure usually has a poorer prognosis because of damage to the nephrons. Usually

the etiology falls into two major classes: nephrotoxic and ischemic tubular injury (*Table 1*).^{1-3, 9} In addition, other causes such as acute glomerulonephritis and acute pyelonephritis can result in acute failure of the kidney. Numerous experimental models have been devised in an attempt to duplicate and investigate these forms of renal failure.^{3, 10-16}

Pathogenesis of Intrinsic Acute Renal Failure

Function of the nephron consists of a complex and regulative balance between glomerular filtration and

Acute renal failure continues to be a clinical and pathological problem of significant incidence and yet of obscure mechanisms. Newer methods of treatment, including dialysis and the use of mannitol, emphasize the importance of estimating the nature and degree of injury to the kidney and the ability of the kidney to recover structure and function. This discussion concerns the etiology and pathogenesis of acute renal failure, the mechanisms of renal repair, and the use of renal biopsy as an adjunct in estimating injury and repair of the nephron.

tubular re-absorption. Alteration of either of these factors can lead to acute renal failure. Indeed, many clinical instances of acute failure of the kidney likely involve a combination of these factors. Any alteration in hemodynamics leading to decreased renal blood flow (renal ischemia) of a sufficient degree may result in decreased glomerular filtration rate and oliguria.^{3, 11, 27, 28} Shock or dehydration may result in marked decrease in renal blood flow. Injection of highly concentrated contrast media for renal angiography may have a similar effect.¹ Intravascular coagulation within the kidney, such as hemolytic uremic syndrome, thrombotic thrombocytopenia or gram-negative septicemia, may cause significant obstruction to glomerular blood flow. Similarly acute glomerulonephritis and eclampsia can result in

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TABLE 1

REPRESENTATIVE CAUSES OF INTRINSIC ACUTE RENAL FAILURE

Nephrotoxins

- Heavy metals—mercury, uranium, dichromate^{2, 5, 10, 15, 17}
- Organic chemicals—carbon tetrachloride, glycols, chloroform, toluene, sodium salicylate^{1, 17-19}
- Antibiotics—sulfa, tetracycline, colymycin, cephaloridine, neomycin, polymyxin, amphotericin, methicillin, kanamycin, streptomycin, bacitracin²⁰⁻²⁴
- Pesticides^{1, 17}
- Poisonous mushrooms²⁵

Renal Ischemia

- Renal artery or vein occlusion⁵
- Hemorrhagic or vasomotor shock^{1, 5}
- Severe dehydration¹
- Crushing injury—muscle trauma, fat embolism^{1, 5}
- Severe burns¹
- Intravascular hemolysis—transfusion reactions, use of distilled water for bladder irrigation¹
- Intravascular coagulopathy—abortion, abruptio placenta, septicemia, hemolytic uremic syndrome^{1, 5, 26}
- Hepatorenal syndrome^{1, 5}
- Use of oral cholecystographic or renal angiographic materials¹

Nephron Obstruction

- Multiple myeloma^{1, 26}
- Gout¹

glomerular endothelial swelling with obstruction to the flow of blood within the glomeruli. Decreased glomerular filtration has been found to exist in many instances of both toxic and ischemic renal injury. This decrease in glomerular filtration rate may be either the result of a general decrease in renal blood flow or shunting of blood from damaged nephrons by autoregulatory mechanisms.²⁸

Primary damage to the renal tubules may also result in acute renal failure by affecting tubular re-absorptive mechanisms. Nephrotoxic substances usually are filtered by the renal glomeruli, concentrated in the glomerular filtrate as it passes down the tubules, re-absorbed by the proximal tubular epithelium and injure the tubules at the site of maximal re-absorption.^{12, 29} The nature of the oliguria in these instances may, at least in part, be related to a non-selective passive back diffusion of glomerular filtrate through damaged proximal tubular cells. The driving force of this diffusion, however, remains obscure

but may be related to the oncotic pressure within the peritubular capillaries.

Still another possible contributing factor playing a role in the pathogenesis of acute renal failure is obstruction to the flow of glomerular filtrate down the nephron.³⁰ This intrarenal obstructive uropathy may be due to the presence of necrotic proximal tubular cells within the lumen of the damaged tubules, e.g., following mercuric chloride injury, or due to the presence of pigment casts resulting from myoglobinemia, hemoglobinemia, or perhaps bilirubinemia.²⁶ Obstruction to the flow of glomerular filtrate within the lumen of the nephron has also been postulated to be related to interstitial edema within the kidney following toxic or ischemic injury.³ Most studies, however, have failed to confirm this hypothesis. Maintaining the filtration of blood and the flow of glomerular filtrate by the administration of substances such as mannitol have been found helpful in the prevention and treatment of acute renal failure—both pre-renal and intrinsic in origin.^{4, 8, 31, 32} Others have found similar effects using drugs such as papaverine hydrochloride and adifenine hydrochloride.³³

Recovery of the Nephron Following Intrinsic Injury

The patient with acute renal failure usually progresses along one of two courses: either the patient develops progressive uremia without recovery of function and dies, or the patient remains oliguric for a period of several days to several weeks followed by a diuretic phase and gradual recovery of tubular-concentrating ability. The course is dependent upon the degree of severity of the underlying nephron injury and the ability of the kidney to repair the injury to the nephrons.^{11, 12} The histologic appearance of the nephrons in intrinsic renal failure vary from essentially normal to marked widespread necrosis (*Figures 1-3*). Often subtle ultrastructural and biochemical alterations of the tubules responsible for the failure in selective transport can only be measured by the use of special techniques such as electron microscopy (*Figure 4*) or enzyme histochemistry. The characterization of the nature and severity of renal injury is useful in determining the best treatment of the patient. This laboratory and others have attempted to characterize the details of the initial injury and to delineate the ability of the kidney to repair this injury and to recover structure and function of the nephrons.^{3, 9-13, 15}

Characteristically, the proximal tubular necrosis of severe acute intrinsic renal failure whether related etiologically to nephrotoxic damage or to renal ischemia results in necrosis of the labile proximal tubular cells reaching a maximum within two to three

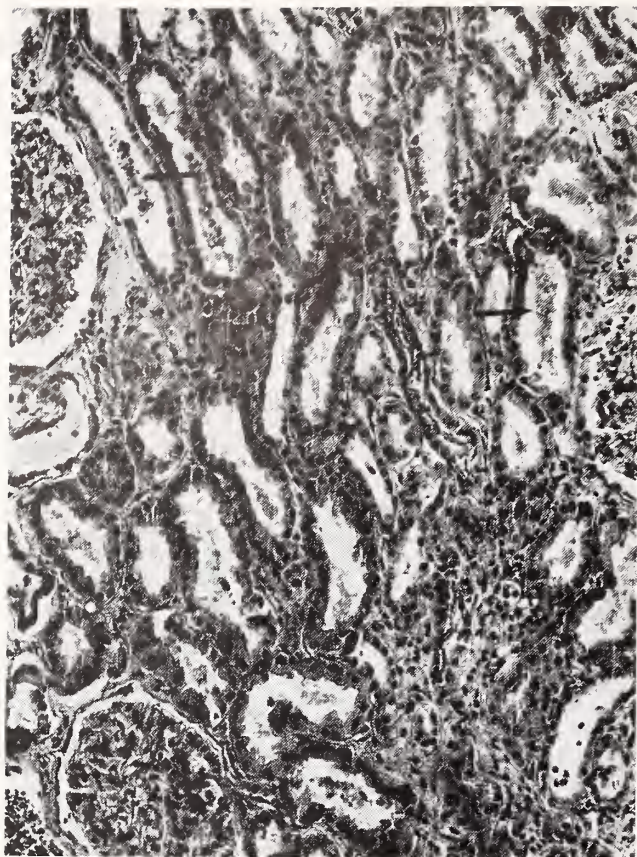
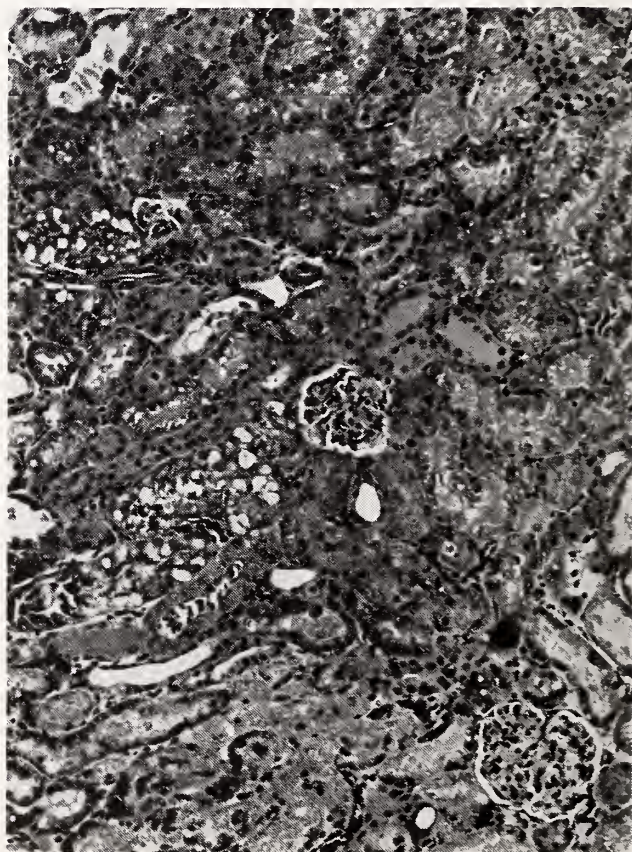


Figure 1. Renal biopsy of a patient with acute ischemic renal failure following a transfusion reaction. The glomeruli and tubules appear structurally intact. Granular hemoglobin pigment is present within the lumens of occasional tubules (arrow). Light photomicrograph. Hematoxylin and eosin stain. $\times 120$.

Figure 2. Focal acute ischemic tubular necrosis in the kidney of a rat injected one day previously with serotonin. The proximal tubules in the upper portion are intact, while those in the lower portion are vacuolated and necrotic. Light photomicrograph. Hematoxylin and eosin stain. $\times 120$.



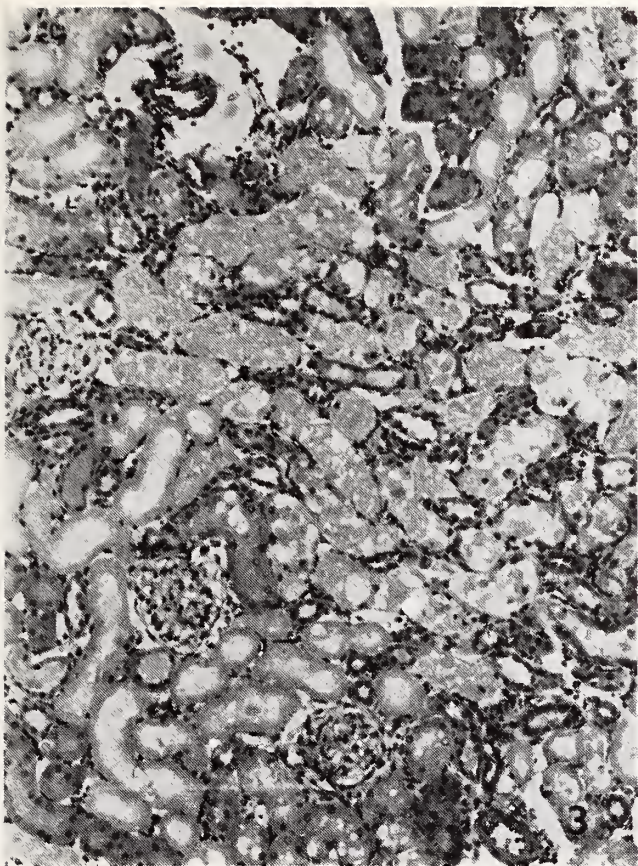


Figure 3. Widespread acute toxic necrosis of the proximal tubules of a rat injected one day previously with mercuric chloride. Most of the proximal tubules are necrotic. Debris fills most of their lumens. The glomeruli are intact. Light photomicrograph. Hematoxylin and eosin stain. $\times 120$.

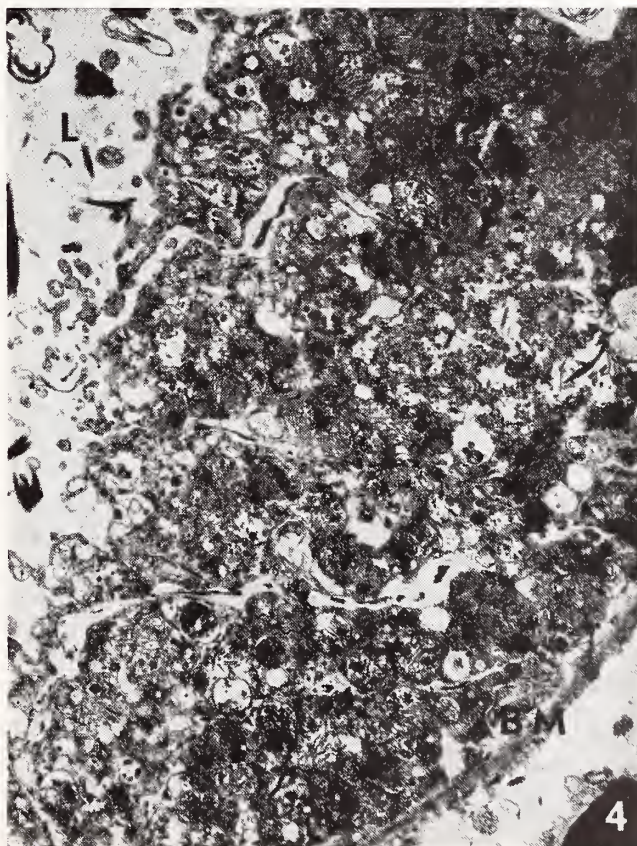


Figure 4. Electron micrograph of early ischemic necrosis in a proximal tubule of a rat whose renal pedicle had been temporarily occluded for three hours one day previously. The organelles of the cytoplasm (C) are swollen and disrupted. Necrotic debris is located within the tubular lumen (L). BM, basement membrane. Uranyl acetate and lead citrate stain. $\times 7,000$.

days following the injury. If the damage is severe the basement membrane fragments (*Figure 5*). The necrotic tubular cells are shed into the lumen of the tubules and are gradually released into the urine. Within three days the few residual non-necrotic proximal epithelial cells in the zone of necrosis undergo rapid division and spread as flat regenerating cells to reline the denuded basement membrane. It is during this phase of early regeneration that the lining cells divide rapidly to reconstitute a lining of the tubule.^{11, 12, 15} They possess few cellular components necessary for the function of cell transport.



Figure 5. Fragmented basement membranes (arrows) of tubules several weeks following ischemic renal tubular injury in an individual following septic abortion. Light photomicrograph. Reticulin stain. $\times 300$.

Therefore, during this phase of several days to one or more weeks, glomerular filtrate rapidly flows down the nephron without adequate re-absorption resulting in the polyuria of the diuretic phase (*Figure 6*). Later (within several weeks) if the original damage was not too severe, the young regenerating cells reconstitute the cytoplasmic components necessary for transport, including brush-border basilar infoldings and mitochondria (*Figure 7*).^{11, 12} Once the cell mechanisms for transport are replenished, glomerular filtrate is again re-absorbed and normal function of

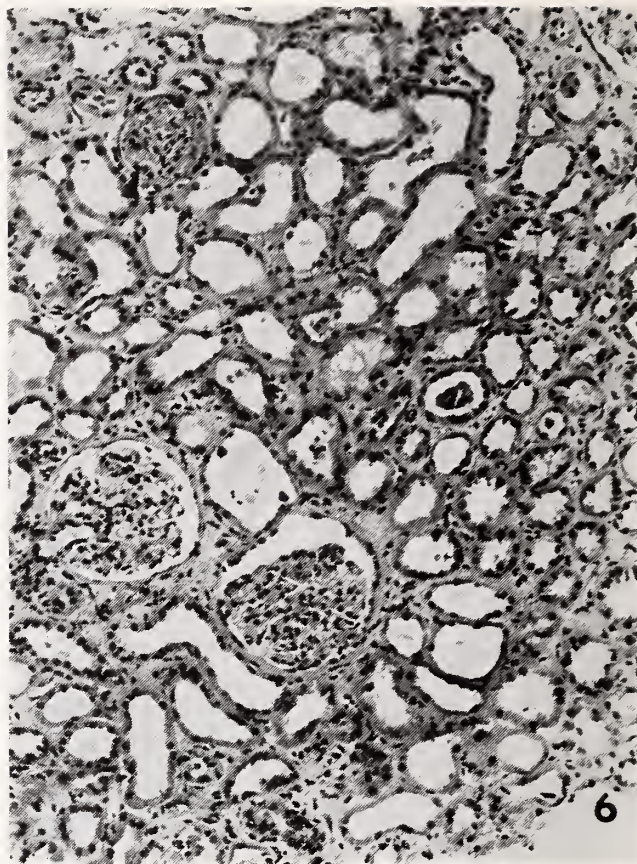


Figure 6. Flattened regenerating proximal tubular epithelium in a patient undergoing the early diuretic phase of acute renal failure three weeks following ischemic injury related to trauma and shock. Note that nearly all of the tubular cells are flattened with apparent dilatation of the tubular lumens. Light photomicrograph. Hematoxylin and eosin stain. $\times 120$.

the nephron is regained. If, on the other hand, the original tubular damage has been overly severe, the basement membrane fragments and the regeneration within the tubule becomes disorganized (*Figure 8*). The result is a nonfunctioning nephron.

These studies have revealed a remarkable ability of the kidney to repair injury of its nephrons. The structural features necessary for regeneration and therefore helpful in prognosticating recoverability include: (1) the presence of an intact basement membrane of the tubules upon which the regenerating cells grow; (2) the presence of intact glomeruli to insure the capability of continued glomerular filtration and tubular flow; (3) an adequate number of residual, non-necrotic proximal epithelial cells to divide and regenerate the tubular lining; and (4) an absence of significant underlying renal disease, such as arteriolar sclerosis, glomerular sclerosis or pyelonephritis, that would deter the regenerative capabilities of the nephron.^{3, 9, 11, 12} These guidelines can often best be evaluated by renal biopsy. Therefore, biopsy is often indicated in patients with



Figure 7. Nearly complete regeneration of the proximal tubules twenty-eight days following the administration of mercuric chloride in a rat. The proximal tubular epithelium has regained its height and appears essentially normal. Light photomicrograph. Hematoxylin and eosin stain. $\times 120$.

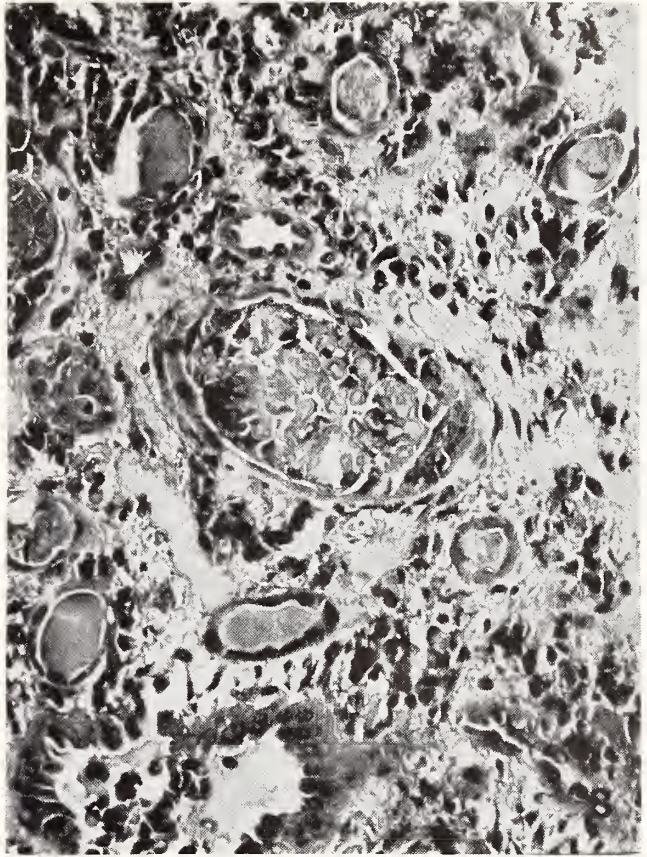


Figure 8. Disorganized tubular regeneration in the kidney of an individual who developed acute renal failure three weeks following marked ischemic renal injury. Note the lumen of the tubule in the center of the photograph nearly filled with overabundant regenerating cells. Moderate interstitial fibrosis is also present. Light photomicrograph. Hematoxylin and eosin stain. $\times 300$.

acute intrinsic renal failure to establish the nature and severity of the injury and to provide a measure of the capability of the kidney to recover. Occasionally ancillary tools, such as electron microscopy, prove helpful in estimating the degree of original injury or the extent of tubular regeneration.¹¹⁻¹³

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References

1. Heptinstall, R. H.: Acute renal failure, in *Pathology of the Kidney*. Boston, Little, Brown and Company, 1966, p. 645-678.
2. Merrill, J. P.: Acute renal failure, in *Diseases of the Kidney*. Strauss, M. B. and Welt, L. G. (eds). Boston, Little, Brown and Company, 1963, p. 445-468.
3. Oliver, J.; MacDowell, M. and Tracy, A.: The pathogenesis of acute renal failure associated with traumatic and toxic injury. Renal ischemia, nephrotoxic damage and the ischemic episode. *J. Clin. Invest.* 30:1307-1350, 1951.
4. Powers, S. R., Jr.: Relation of acute tubular necrosis to shock and the effect of mannitol. *Amer. J. Surg.* 110:330-332, 1965.
5. Smith, H. W.: Acute renal failure related to traumatic and toxic injuries, in *The Kidney, Structure and Function in Health and Disease*. New York, Oxford Press, 1951, p. 752-813.
6. Smith, K.; Browne, J. C. M.; Shackman, R. and Wrong, O. M.: Renal failure of obstetric origin. *Brit. Med. Bull.* 24:49-58, 1968.
7. Berman, L. B.: The patient who makes no urine. *G.P.* 36:106-107, 1967.
8. Parry, W. L.: Considerations of acute renal failure for the surgeon. *Surg. Clin. N. Amer.* 45:1365-1376, 1965.
9. Oliver, J.: Correlations of structure and function and mechanisms of recovery in acute tubular necrosis. *Amer. J. Med.* 15:535-557, 1953.
10. Baines, A. D.: Cell renewal following dichromate induced renal tubular necrosis. *Amer. J. Path.* 47:851-876, 1965.
11. Cuppage, F. E.; Neagoy, D. R. and Tate, A.: Repair of the nephron following temporary occlusion of the renal pedicle. *Lab. Invest.* 17:660-674, 1967.
12. Cuppage, F. E. and Tate, A.: Repair of the nephron following injury with mercuric chloride. *Amer. J. Path.* 51:405-429, 1967.
13. Kempczinski, R. F. and Caulfield, J. B.: A light and electron microscopic study of renal tubular regeneration. *Nephron* 5:249-264, 1968.
14. Mason, A. D., Jr.; Alexander, J. W. and Teschan, P. E.: Studies in acute renal failure. I. Development of a reproducible lesion in experimental animals. *U. S. Army Surg. Res. Unit Report*, April 1960.

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Emergency Laparotomies

—at KUMC in a Recent Three-Year Period

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THE PROVISION OF EMERGENCY service is one of the major problems facing physicians, especially general surgeons, and general hospitals in metropolitan communities in the United States. The emergency rooms are usually too small for the rapidly increasing numbers of patients, and the personnel in the area are usually too few in number to get the job done effectively. This is compounded by the rising demand by the public for quality and efficient emergency care, and their objection to the rising cost for all medical services. In the midst of this, the expanding population of our mechanized society presents an emergency service with increasing numbers of seriously injured and seriously ill patients.¹ In metropolitan Kansas City, the emergency room patient load increased by 34 per cent from 1966 to 1967!²

To provide emergency care to those in need of such care poses several major problems for a hospital. There are the administrative problems of handling large numbers of patients who think that they have an emergency problem. There is also the medical problem of sorting out the various illnesses and injuries suffered by each patient and channeling each toward the appropriate treatment. Finally, there is the medical specialist's problem of providing high-quality, in-depth care to each patient who requires such specialized care. This study examines the definitive surgical care given to a consecutive series of patients admitted through the emergency service of the University of Kansas Medical Center over a three year period.

From the first of January 1965, through the 31st of December 1967, there were 49,337 patients seen in our emergency room, of which 13 per cent were admitted to the hospital. Excluding those patients with a preoperative diagnosis of acute appendicitis, only 131 of these emergency admissions required a laparotomy. Also excluded from this series is the relatively large number of injured or ill patients who were stabilized elsewhere and admitted directly into

this hospital under the care of one of our private staff physicians.

Because of rapid change occurring in the area of emergency care, particularly at this center, it was

The organization of an emergency service is crucial for good care, and emphasis should be on the capacity to immediately recognize the seriously injured or ill patient and provide him with resuscitation and support. An emergency service with a moderate or low volume can obtain results in seriously injured patients which are comparable to the results reported from the very large trauma centers. Although clinical signs can be misleading in the acutely injured patient, other diagnostic aids must be conveniently available if they are to help guide the clinician. The use of peritoneal lavage seems most promising as a diagnostic aid. Although a laparotomy which discloses no intraperitoneal injury carries some risk in the injured patient, this danger is certainly not very great.

felt that it was desirable to analyze a small recent series of patients, instead of a large number of patients spread over many years. In the last five years the emergency room patient-load has alternately decreased and increased over 50 per cent. In addition, most reported series of patients are from large "trauma centers" which may not be comparable to our experience in a "private" or "referral" hospital with a relatively small volume of emergency patients. At this time, when emergency care is under intense scrutiny for ways of improving its delivery, it is especially appropriate to analyze our recent results.

The record of each of these 131 patients was carefully reviewed for information regarding the signs and symptoms at the time of admission, laboratory and radiologic studies, time intervals, findings at laparotomy, and eventual outcome.

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Results

A total of 131 patients received laparotomies following admission to the emergency service under the previously stated limitations. These were divided into two groups on the basis of whether or not their admission was immediately preceded by trauma. Each of these groups was then subdivided on the basis of whether they received their operation within the first 12 hours or not (*Table 1*).

TABLE 1
LAPAROTOMIES FOLLOWING ADMISSION
THROUGH THE EMERGENCY SERVICE

	Following Trauma		Not Fol- lowing Trauma	Total
	PENE- TRATING	NON-PENE- TRATING		
Immediate laparotomy . .	19	22	30	71
Laparotomy delayed 12 hours more . . .	1	3	56	60
Total	20	25	86	131

Distribution by etiology and time delay of patients who received emergency laparotomies is shown here.

EMERGENCY LAPAROTOMIES FOLLOWING TRAUMA

Of the 45 patients sustaining trauma shortly before arriving at the emergency room, four were observed and studied for over 12 hours before undergoing laparotomies. Twenty of the 45 had penetrating wounds of the abdomen, and 25 had no penetrating wounds of the abdomen. One of the patients with a penetrating wound was observed more than 12 hours before a laparotomy was performed. The average time interval between the arrival of the patient at the emergency room and the beginning of the operation (excluding the one patient requiring prolonged evaluation) was two hours and 22 minutes.

Laparotomies for three patients who did not have penetrating wounds of the abdomen were delayed over 12 hours. One patient was subsequently found to have traumatic pancreatitis; one had necrosis of the small bowel following a nonhemorrhagic injury to the mesentery; and the third patient had a slow hemorrhage from the spleen and a lacerated left kidney. Excluding the three patients requiring prolonged evaluation, the average time interval between

arrival and operation was three hours and 21 minutes.

All four of the patients whose laparotomies were delayed more than 12 hours after arrival following trauma survived the operation and were discharged in satisfactory health.

Three patients (7 per cent) died following trauma. All three had multiple system injuries, non-penetrating injuries of the abdomen, and were in shock upon arrival at the emergency room. All died within the first 12 hours after admission. One was a 45-year-old man, who was admitted in shock following a car accident. He had suffered a fractured skull, ruptured liver, and a ruptured kidney. Another patient who died was an 18-year-old victim from a car wreck, who arrived in shock with a pneumothorax, ruptured liver, and multiple fractures of the cervical spine, extremities, and ribs. The third was a 17-year-old who was involved in a car wreck and was admitted in shock with a pneumothorax, severe contusion of the lungs, ruptured spleen, and died from intrapulmonary hemorrhage.

The frequency of multiple organ injuries (*Table 2*) reflects the severity of the injuring trauma. The

TABLE 2
FREQUENCY OF ABDOMINAL
ORGANS INJURED

Spleen	14
Multiple organs	13
Liver	8
Small bowel	8
Kidney	5
Colon	5
Stomach	4
Diaphragm	2
Vessels	2
Bladder	2
Others	3
Total	66

The abdominal organs most commonly injured by trauma are listed in order of frequency.

spleen was the single organ most commonly injured, followed by the liver and small intestine.

There was a poor relationship between the objective, recorded preoperative signs of abdominal injury and the findings at laparotomy. Only three signs of an acute surgical abdomen were accurate over 50 per cent of the time (*Table 3*). These three were muscular spasm of the abdominal wall, abnormal bowel sounds, and peritoneal tap or lavage.

TABLE 3
RELIABILITY OF VARIOUS SIGNS OF
INTRAPERITONEAL INJURY

Sign	No. of Cases	Per Cent Accuracy With Intra-Peritoneal Injury	Per Cent Accuracy Without Intra-Peritoneal Injury
Positive peritoneal lavage or tap . .	10	100	100
(Negative peritoneal lavage or tap) . .	(1)	(100)	(100)
Abnormal bowel sounds	32	72	33
Abdominal muscular spasm	33	70	20

Signs which provided an accuracy of over 50 per cent in regard to intra-abdominal injury are shown here.

Spasm of the abdominal wall meant either definite guarding or definite rebound tenderness, and abnormal bowel sounds meant either absent or definitely decreased sounds. The criteria of Root¹⁰ regarding the presence of red blood cells or white blood cells in the peritoneal fluid was used, and the surprising accuracy of this sign in our small series is corroborated by others.^{3, 10, 11}

A more detailed breakdown on the presenting signs, studies, and results for patients with penetrating abdominal wounds is shown in *Table 4* and

for nonpenetrating injuries in *Table 5*. Although 14 patients had hematuria (gross or microscopic) when they arrived at the emergency room, only five had any other evidence of renal injury, including inspection at the time of laparotomy. Microscopic or nonapparent injuries were certainly probable in the kidneys of these patients, but clinically significant urinary injuries seem unlikely.

Although abdominal muscle spasm and abnormal bowel sounds were the most common physical signs to be found among patients with intra-abdominal injury, these were also the most common signs found in patients who were explored but who did not have intra-abdominal injury. This is not surprising, because these are two of the signs most heavily relied upon to aid in the decision of whether or not to open an injured abdomen. However, these inaccuracies must be seen in the light that none of the patients who had a laparotomy without intra-abdominal injury died.

EMERGENCY LAPAROTOMY NOT FOLLOWING TRAUMA

Eighty-six patients received laparotomies after admission to the emergency room. None of these patients had a previous episode of trauma or the preoperative diagnosis of acute appendicitis. Of this group, 30 patients received their operation within the first 12 hours after admission; the remainder were observed or treated for more prolonged periods of time. *Table 6* indicates the general classification of the intraperitoneal problems found in the patients whose abdomens were surgically explored. It is of interest that none of the patients with gastrointestinal bleeding received a laparotomy during the first

TABLE 4
PATIENTS WITH PENETRATING ABDOMINAL WOUNDS

Abdominal Injury	Total	Nausea and Vomiting	Abdominal Rigidity	Abnormal Bowel Sounds	Abnormal X-ray	Shock	Hematuria	Mortality
Multiple organs	8	1	5	2	1	3	2	0
Colon	3	0	2	2	0	1	2	0
Liver	1	0	1	0	0	0	0	0
Small bowel	1	0	0	1	0	0	0	0
No peritoneal injury found	4	0	3	1	0	0	0	0
Other	3	0	1	2	1	3	1	0
Total	20	1	12	8	2	7	5	0

The common signs noted on patients with penetrating abdominal wounds are compared with the nature of the injuries found at the time of laparotomy. Peritoneal lavage or tap was not deemed necessary in any of these patients.

TABLE 5
PATIENTS WITH NO PENETRATING ABDOMINAL WOUNDS

<i>Abdominal Injuries</i>	<i>Total Explored</i>	<i>Nausea and Vomiting</i>	<i>Abdominal Rigidity</i>	<i>Abnormal Bowel Sounds</i>	<i>Abnormal X-ray</i>	<i>Shock</i>	<i>Hema- turia</i>	<i>Lavage</i>	<i>Mortality</i>
Multiple organs	5	1	5	2	0	2	3	4	1
Ruptured spleen	8	2	6	5	1	4	1	2	1
Liver	1	0	1	0	0	0	0	1	1
Small bowel ..	3	1	2	2	0	0	1	1	0
No intra-peri- toneal injury found	4	1	3	3	0	1	1	1	0
Other	4	2	2	3	0	0	3	0	0
Total	25	7	19	15	1	7	9	9	3

The common signs noted in patients without penetrating abdominal wounds but who suffered severe trauma are compared with the nature of the injuries found at the time of laparotomy.

12 hours after admission. The usual reasons for the delay were attempts to stabilize the patient, or attempts at more precise diagnosis.

The results of various signs and the outcome for those patients who received laparotomies during the first 12 hours after admission are presented in Table 7. One should note that peritoneal lavage or tap was utilized only twice in this group of 30 patients, but an acute surgical abdomen was accurately diagnosed on both occasions.

Specific signs and laboratory studies become of more obvious importance, depending upon the type

of intraperitoneal problem at hand. Nausea, generalized abdominal pain, distention, and abnormal gas patterns observed by x-ray examination were frequently seen in patients with intestinal obstruction. In peritoneal infections, nausea and vomiting were always present, and generalized abdominal pain nearly always, but distention and abnormal gas patterns were more rare. It is of interest that leukocytosis of over 15,000 was present in only 25 per cent of the patients with infectious processes in the peritoneal cavity.

Discussion

Many authors have appropriately emphasized the importance of immediate operations for patients who are injured. The initial examination of seriously injured patients is sometimes actually done in the operating room.⁷ It is certainly advantageous to immediately move the seriously injured patients into a specially prepared room where resuscitation and life-support can be carried out. However, the advantage of doing this in the operating room itself does not seem compelling, except perhaps in large, specialized, trauma centers.¹³ If immediate resuscitation and support are given, the definitive surgery can usually be delayed a short time except in certain rarer injuries such as ruptured aneurysms and penetrating lesions of the heart.⁹

The actual time delays between the arrival of patients at our emergency room and the beginning of indicated laparotomies were about two and a half hours for penetrating wounds and three and a half hours for nonpenetrating wounds. Approximately 20 per cent of the patients with nonpenetrating trauma had multiple organs injured. The only deaths among the

TABLE 6
EMERGENCY LAPAROTOMIES
NOT RELATED TO TRAUMA

	<i>Operation Within 12 Hours</i>	<i>Operation After 12 Hours</i>	<i>Total</i>
Intestinal obstruction	13	10	23
Infections	8	12	20
Perforated viscus	5	0	5
Ectopic pregnancy	4	0	4
GI bleeding	0	8	8
Others	0	26	27
Total	30	56	86

The etiology of the emergency requiring operations on patients admitted through the emergency service without a history of trauma are shown, comparing those who had a laparotomy within 12 hours after arriving with those who were observed over 12 hours before having a laparotomy.

TABLE 7
EMERGENCY LAPAROTOMIES NOT RELATED TO TRAUMA
NUMBER OF PATIENTS PRESENTING THESE SIGNS

Type of Problem	No. of Patients Evaluated	Nausea and Vomiting	General Abdominal Pain	Local Abdominal Pain	Abdominal Distress	Abnormal Bowel Sounds	Intra-Peritoneal Gas by X-ray	Abnormal Gas Pattern by X-ray	Shock	Mortality
Intestinal obstruction	13	9	9	2	11	2	0	13	5	2
Infections	8	8	7	5	3	1	0	5	4	2
Perforated viscus . .	5	4	5	0	2	5	1	2	3	2
Ectopic pregnancy .	4	1	3	2	1	0	0	0	1	0
Total	30	22	24	9	17	8	1	20	13	6

Patients admitted through the emergency service without a history of trauma are compared on the basis of the underlying cause requiring the emergency laparotomy and on the common signs observed and the eventual outcome.

patients operated on after trauma (7 per cent with blunt trauma and 0 per cent with penetrating trauma) were in patients who arrived in shock with severe multi-organ injuries. These results are essentially comparable with other reported series.^{4, 8} Associated head or chest injuries occurred in one half of the patients receiving blunt trauma, and this also causes a poorer prognosis.¹⁵

We were surprised to find that in no case did peritoneal tap or lavage mislead the clinician. Others,^{3, 11} studying larger series of patients, have reported such accuracy with peritoneal lavage. However, when there is clear clinical evidence of an acute surgical abdomen,¹² additional time need not be consumed with this procedure. Peritoneal lavage seems most appropriate in patients who are mentally obtunded and not responsive to moderately painful stimuli, or who have spinal cord injuries confusing the etiology of muscular spasm. The mortality rate for a simple laparotomy is quite low (zero in this series). However, such a surgical procedure can conceivably compromise patients with other life-threatening injuries by adding additional wounds, delaying other treatment, or distracting attention from other critical aspects of care.

In the treatment of penetrating wounds, radiologic aid by injection of hypaque or other contrast media into the tract has been recommended by some,¹⁴ who report over 80 per cent accuracy in diagnosis. This test was not carried out in this series, but has been subsequently. Nor did our present series include the use of selective angiography for diagnosing organ injury,⁵ but we have used it subsequent to this series. These techniques must be conveniently

and immediately available if they are to be helpful in evaluating the injured patient.

References

1. Beloff, Jerome S.: Adapting the hospital emergency service organization to patient needs. *Hospitals* 42:65, 1968.
2. Brose, Richard A. and Youmans, Roger L.: A study of medical care services, Kansas City metropolitan area, submitted to the Kansas City Area Hospital Association, September, 1968.
3. Gumbert, Jack L.; Frederman, Stanley E. and Mercho, Jean P.: Diagnostic peritoneal lavage in blunt abdominal trauma. *Ann. of Surg.* 165:248, 1965.
4. Morton, John H.; Hinshaw, Raymond J. and Morton, John J.: Blunt trauma of the abdomen. *Ann. of Surg.* 145:699, 1957.
5. Nelson, James F.: The roentgenologic evaluation of abdominal trauma. *Radiol. Clin. of N. Am.* 4:415, 1966.
6. Netterville, R. E. and Hardy, J. D.: Penetrating wounds of the abdomen: Analysis of 155 cases with problems in management. *Ann. of Surg.* 166:232, 1967.
7. Noer, Rudolph J.: Critical surgery belongs in the O.R., not the E.R. *Modern Hospital* 106:92, 1966.
8. Pridgen, James E., et al.: Penetrating wounds of the abdomen: Analysis of 776 operative cases. *Ann. of Surg.* 145:699, 1957.
9. Ransdell, H. T., Jr. and Glass, H., Jr.: Gunshot wounds of the heart: A review of 20 cases. *Am. J. of Surg.* 99:788, 1960.
10. Root, Harlan K.; Keizer, Phillip J. and Perry, John F.: The clinical and experimental aspects of peritoneal response to injury. *Arch. of Surg.* 95:531, 1967.
11. Root, Harlan K., et al.: Diagnostic peritoneal lavage. *Surgery* 57:633, 1965.
12. Shafton, Gerald W.: Indications for operation in abdominal trauma. *Am. J. of Surg.* 99:657, 1960.
13. Shires, Tom, ed.: *Preface of Care of the Trauma Patient*. New York, McGraw-Hill Book Co., 1966.
14. Smithwick, Walter, III; Gertner, Harold R., Jr. and Zuidema, George D.: Injection of hypaque (Sodium Diatrizoate) in the management of abdominal stab wounds. *Surg. Gyn. and Ob.* 127:1215, 1965.
15. Williams, Roger D. and Zollinger, Robert M.: Diagnostic and prognostic factors in abdominal trauma. *Amer. J. of Surg.* 97:575, 1959.

Shoulder Pain

Suprascapular Nerve Block in Shoulder Pain

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LOCAL INJECTION of one of the steroid compounds with or without a local anesthetic agent is a well accepted adjunct in the treatment of shoulder pain due to local cause.¹ The benefit of the procedure, however, is occasionally complicated by a severe exacerbation of the shoulder pain occasioned by the injection *per se*. We have seen several instances of real shoulder disability which appeared directly attributable to the trauma of injection into an already irritated local area. Inasmuch as the purpose of the local injection is primarily to diminish pain, if this can be accomplished by other than local measures, the same objective will have been achieved without the added local trauma of the injection. The purpose of this brief discussion is simply to call attention to the value of blocking the suprascapular nerve which provides pain fibers to the shoulder joint structures.

The suprascapular nerve contains afferent, efferent, and sympathetic components. It innervates not only the spinati muscles but supplies the afferent pathway for pain fibers arising from the acromioclavicular joint and the superior and posterior portions of the rotator cuff of the shoulder. Some sympathetic fibers are distributed with this nerve, some with the ramifications of the suprascapular artery, and some in the periarterial plexus derived from the stellate ganglion and distributed with the branches of the axillary artery supplying the anterior portion of the shoulder capsule. The nerve enters the supraspinous fossa through the suprascapular notch, gives off a medial branch or two supplying motor fibers to the supraspinatus muscle, proceeds laterally in the supraspinous fossa giving off articular filaments to the acromioclavicular and shoulder joints, and curves around the spinoglenoid notch to the infraspinous fossa supplying additional filaments to the shoulder capsule as it does so and terminates in branches to the infraspinatus muscle. Block of the nerve at the proper point in the supraspinous fossa, therefore, would interrupt the function of the sensory and the sympathetic fibers to the joint capsule and tendons.

The standard technique of blocking this nerve has been described.² However, we have preferred the

method of Granirer³ because of its simplicity. As shown in *Figure 1*, the general schematics of the landmarks to be followed are as follows: The lateral border of the acromion process is identified; two inches from this point along the spine of the scapula, a one-half inch projection into the supraspinous fossa will be approximately over the suprascapular nerve.

Attention is called to a simple procedure by which the sensory and sympathetic fibers of the suprascapular nerve which innervate approximately two-thirds of the shoulder capsule may be blocked.

The agent employed has been a combination of lidocaine and phenol. Sensitivity to either agent has not been encountered, but should not be ignored.

The ease of carrying out this procedure, its safety, and the lack of added trauma to the local shoulder lesion commend its early employment in the treatment of shoulder pain from local cause.

A 25 gauge needle two inches in length is introduced perpendicular to the skin surface and advanced until the floor of the fossa is encountered. The anesthetic solution is injected at this point, as the suprascapular nerve lies between the scapular periosteum and the adjacent fascial covering of the supraspinatus muscle. We have not attempted to identify the nerve by probing until paresthesias to the shoulder are encountered, nor to block the nerve in the suprascapular notch. Excessive needling may traumatize the suprascapular artery which parallels the nerve in this area; however, we have encountered no difficulty with injection onto the floor of the fossa. Inasmuch as the anesthetic effects of procaine or lidocaine hydrochloride are apt to be transitory, we have used the combination of 1 ml of 1 per cent lidocaine hydrochloride and 2 ml of 3 per cent phenol. The latter provides a longer lasting effect, and in dilute solution is believed to have a rather selective action on small

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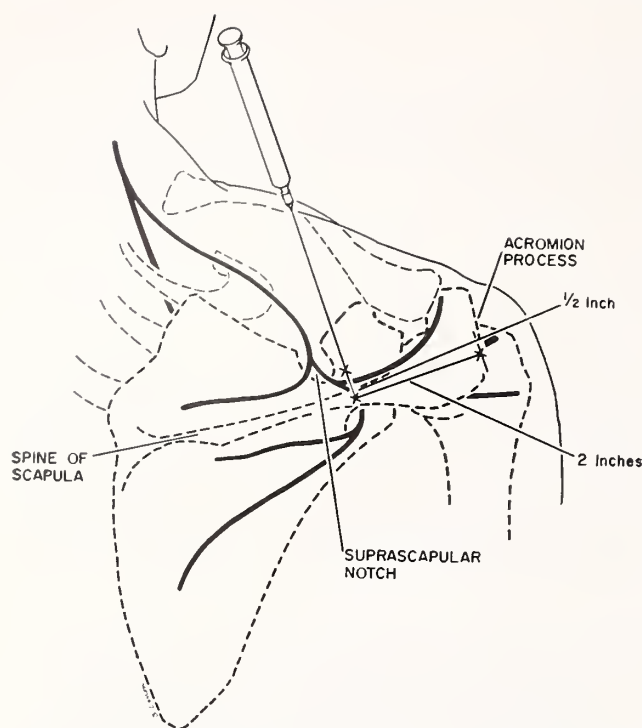


Figure 1. Technique for Blocking the Suprascapular Nerve. The right shoulder is shown with the patient in a seated position. The course of the nerve is shown in heavy lines. The measurements noted are for the average size adult, and are shown at the X's. The needle is inserted perpendicular to the skin at the X projection into the suprascapular fossa.

axon diameter nerves,⁴ of which pain fibers and sympathetic fibers are two examples.

The decrease in the symptoms of pain and stiffness on arm movements has frequently been noteworthy following such injection. Muscular weakness, occasioned by the block, is minimal to absent. We have not observed exacerbation of shoulder pain from this procedure. However, if the shoulder pain begins to recur, as the anesthetic effect wears off, reinjection should be carried out in the same manner as described.

It should be pointed out that this procedure is most applicable for the tendinitis-bursitis type of shoulder involvement. It would not be expected to be effective in shoulder pain of referred origin, from systemic disease with shoulder manifestations, or involvement of the shoulder capsule beyond the innervation outlined.

References

1. Cailliet, R.: *Shoulder Pain*. Philadelphia, F. A. Davis, Co., 1966.
2. Collins, V. J.: *Fundamentals of Nerve Blocking*. Philadelphia, Lea & Febiger Co., 1960.
3. Granirer, L. W.: A simple technic for suprascapular nerve block. *N. Y. State J. Med.* 51:1048, April 15, 1951.
4. Iggo, A. and Walsh, E. G.: Selective block of small fibres in the spinal roots by phenol. *Brain* 83:701-708, 1960.
5. Oliver, J.: The histogenesis of chronic uranium nephritis with especial reference to epithelial regeneration. *J. Exp. Med.* 21:425-450, 1915.
6. Rosen, S.; Mailloux, L. U.; Lawson, N. L. and Teschan, P. E.: Acute renal failure in the rat. I. Gross characteristics. *Lab. Invest.* 18:438-443, 1968.
7. Reidenberg, M. M.; Powers, D. V.; Sevy, R. N. and Bello, C. T.: Acute renal failure due to nephrotoxins. *Amer. J. Med. Sci.* 247:25-29, 1964.
8. Jacobsen, L.; Andersen, E. K. and Thorborg, J. V.: Accidental chloroform nephrosis in mice. *Acta path. et microbiol. scandinav.* 61:503-513, 1964.
9. Robinson, M. J.; Nichols, E. A. and Taitz, L.: Nephrotoxic effect of sodium salicylate intoxication in the rat. *Arch. Path.* 84:224-226, 1967.
10. Beirne, G. J.; Hansing, C. E.; Octaviano, G. N. and Burns, R. O.: Acute renal failure caused by hypersensitivity to polymyxin B sulfate. *JAMA* 202:156-158, 1967.
11. Brauner, G. E. and Remington, J. S.: Nephropathy associated with methicillin therapy. *JAMA* 203:125-127, 1968.
12. Perkins, R. L.; Apicella, M. A.; Lee, I.; Cuppage, F. E. and Saslaw, S.: Cephaloridine and cephalothin: comparative studies of potential nephrotoxicity. *J. Lab. Clin. Med.* 71:75-84, 1968.
13. Schreiner, G. E.: The nephrotoxicity of drugs. *Hosp. Pract.*, November 1966, p. 86-89.
14. Wertlake, P. T.; Butler, W. T.; Hill, G. J., II, and Utz, J. P.: Nephrotoxic tubular damage and calcium deposition following amphotericin B therapy. *Amer. J. Path.* 43:449-457, 1963.
15. Myler, R. K.; Lee, J. C. and Hopper, J., Jr.: Renal tubular necrosis caused by mushroom poisoning. *Arch. Int. Med.* 114:196-204, 1964.
16. Figueroa, J. E.: Acute renal failure: Its unusual causes and manifestations. *Med. Clin. N. Amer.* 51:995-1002, 1967.
17. Finckh, E. S.: The pathogenesis of acute renal failure. *Bull. Post Grad. Com. Med.* 20:121-125, 1964.
18. Henry, L. N.; Lane, C. E. and Kashgarian, M.: Micropuncture studies of the pathophysiology of acute renal failure in the rat. *Lab. Invest.* 19:309-314, 1968.
19. Gritzka, T. L. and Trump, B. F.: Renal tubular lesions caused by mercuric chloride. *Amer. J. Path.* 52:1225-1277, 1968.
20. Myers, J. K.; Storrs, D.; Miller, T. B. and Mueller, C. B.: The role of renal tubular flow in the pathogenesis of traumatic renal failure. *Surg. Gyn. Ob.* 123:1243-1251, 1966.
21. Mielke, J. E. and Kirklin, J. W.: Renal function during and after surgery. *Med. Clin. N. Amer.* 50:979-983, 1966.
22. Teschan, P. E. and Lawson, N. L.: Studies in acute renal failure. Prevention by osmotic diuresis, and observations on the effect of plasma and extracellular volume expansion. *Nephron* 3:1-16, 1966.
23. Johnstone, P. N.: Acute ischemic renal failure and its treatment with specific drugs. *J. Inter. College Surg.* 41:147-159, 1964.

Acute Renal Failure

(Continued from page 129)

Buy

U.S. Savings Bonds

Viruses and Neoplasia

The Search for Viruses in Human Neoplasms

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Introduction

SIXTY-ONE YEARS AGO, Ellerman and Bang showed that chicken leukosis complex was caused by viruses. Soon after (1911), Rous was able to produce a solid tumor in chickens by a viral agent (now called Rous sarcoma virus). Subsequently, a viral etiology was established for rabbit papilloma (Shope, 1933), mouse mammary carcinoma (Bittner, 1936), mouse leukemia (Gross, 1951) and a variety of solid tumors (polyoma) in mice, hamsters and rats (Stewart *et al.*, 1958). In man, however, numerous attempts by many workers throughout the world to isolate, from various human leukemias and solid tumors, viruses which could be etiologically linked with human neoplastic diseases have, so far, been unsuccessful. Nonetheless, it is believed that eventually viruses will be incriminated with at least some types of human neoplasm. This belief is supported by the following:

(1) Human cancers are epidemiologically, clinically and pathologically similar to those of animals, many of which are of established viral etiology and there is no reason to believe that man alone can escape oncogenic viruses.

(2) Those viruses which produce cancers in animals are biophysically, biochemically and, in certain ones, even antigenically similar to common human viruses, certain of which (e.g., adenoviruses) cause experimental tumors in animals (hamsters). It is on the basis of the above two observations and because of the recently developed sophisticated technology that cancer virologists are now earnestly pursuing their search for viruses in human neoplasms.

Oncogenic Viruses

Viruses are classified into two general categories: (1) Those which contain a ribonucleic acid core (RNA) and (2) Those which contain a deoxyribonucleic acid (DNA). In the RNA category, the following seven groups are included: Picornavirus (polio), Arbovirus (St. Louis encephalitis), Myxovirus

(influenza), Paramyxovirus (measles), Reovirus, Rhabdovirus (rabies), and Leukemiavirus.

The last group (leukemiavirus) includes the viruses of avian leukosis complex, Rous sarcoma, mammary mouse carcinoma and murine leukemias. The avian leukosis (lymphomatosis, myeloblastosis and erythroblastosis) viruses are widely spread among normal and leukemic (in blood and blood cells) chickens and the disease is transmitted either horizontally through the saliva and feces or vertically by infected viremic chickens. While horizontally infect-

It is well established that viral agents (RNA and DNA viruses) can cause certain malignant cancers in animals and a few benign neoplasms in man. Since there is ample indirect evidence for the etiologic involvement of viruses in at least certain types of human neoplasms, it is hoped that the new, sophisticated methods and procedures now being developed and utilized by cancer virologists will soon produce positive results.

ed birds go through a viremic stage and recover with the formation of long-lasting antibodies, the vertically infected chickens become permanent shedders of virus and never develop antibodies. Under proper conditions, myeloblasts and erythroblasts from diseased chickens will continue to grow in vitro with the continuous production of infectious virus. All three viruses have been grown in chick embryo cell cultures without any observable cytopathic effects or cell transformation. The Rous sarcoma virus has been continuously passaged at various laboratories since its isolation in 1911 and presently many strains exist which differ from one another and from the original virus. The virus is not transmitted under natural conditions but experimentally it produces sarcomas in birds (chickens, ducks, turkeys, pigeons, etc.) of all ages. Moreover, certain strains of this virus, e.g., Schmidt-Ruppin, produce tumors in newborn rodents (hamsters, mice, etc.) and monkeys, and in snakes

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The literature reviewed for the preparation of this article is extremely extensive and due to limitation in space cannot be listed here. However, certain general reviews and the most recent articles are cited.

and tortoises. When inoculated onto chick embryo cell cultures, the virus transforms these cells (the Bryan strain transforms the normally fibroblastic cells to round cells) and the transformed cells continue to grow and produce infectious virus. The virus-free transformed cells are also oncogenic. Recent work with Rous sarcoma virus has resulted in two important observations. Firstly, it was observed that certain normal chick embryo cell cultures were resistant to the transforming activity of Rous sarcoma virus. This observation, which is now referred to as RIF or Rous inhibitory factor, was found to be due to the presence of one of the three avian leukosis viruses (which are widely distributed among chicken flocks and are transmitted both vertically and horizontally) in such cell cultures. Secondly, one high-titer strain of Rous sarcoma virus, called the Bryan strain, was found to be defective (incapable of reproducing by itself) and, under laboratory conditions, heavily contaminated with one or another of the avian leukosis viruses. The contaminant is called RAV (Rous associated virus) or helper virus. The latter designation was given to indicate the defectiveness of the Bryan strain and the fact that although the strain is independently capable of sarcoma production in vivo and cell transformation in vitro, it needs the cooperation of the helper virus for the production of infectious virus. The helper virus is needed for the synthesis of the protein coat, while the Bryan strain itself produces its own genetic material. Hence, the Bryan strain always has the protein coat of the helper avian leukosis virus. The resistance of chick embryo cell cultures (RIF) depends on whether or not these cultures are naturally harboring the avian leukosis virus which helped in the formation of the protein coat of the superinfecting Bryan strain.

The first of the murine leukemia viruses was isolated by Gross in 1951 by inoculating cell-free extracts from an inbred strain of mice (Ak) with a high incidence of spontaneous leukemia into newborns of an inbred strain of low spontaneous leukemia (C3H mice). By further passage, the incubation period was significantly shortened (from about one year to about four months) and the pathogenicity of the virus (passage A) was so enhanced that older mice (up to two weeks) and newborn rats were also susceptible. More recently, a number of other leukemia-inducing viruses (either thymic, such as Moloney virus, or splenic, such as Friend virus and Rauscher virus) have been isolated from either leukemic mice or normal mice subjected to irradiation. The mouse mammary carcinoma occurs spontaneously in about 100 per cent of the females of C3H mice. When this strain of mice was crossed with C57

mice, whose females develop this type of carcinoma in less than 5 per cent, the inheritance of the spontaneous carcinoma did not follow the Mendelian laws. Bittner showed in 1936 that the development of this carcinoma in the offsprings of the above cross depends on whether or not the newborns suckled on C3H or C57 mothers and that the causative agent was transmitted through the milk of the nursing mother. It was also shown that newborn mice of susceptible breeds can be infected by oral, subcutaneous or intraperitoneal inoculation of infectious material. The role of genetic factors in association with the causative viral factors in both leukemias and mammary carcinoma of mice has been clearly demonstrated.

The second general category of viruses, namely the DNA category includes the following groups: Poxvirus (smallpox), Herpesvirus (herpes simplex), Adenovirus, Papovavirus (wart) and Picodnavirus (adeno-associated virus of man). Members of all five groups of DNA viruses have been incriminated, in one way or another, in various neoplastic diseases. A member of the poxvirus group, namely Yaba tumor virus, was isolated from histiocytomas observed in normal rhesus monkeys. The virus induces similar types of tumor, which normally regress spontaneously, in man and other primates. Antigenically and in pathogenesis it is distinct from all other poxviruses.² A herpes or a herpes-like virus has been shown to be associated with Burkitt's lymphoma, infectious mononucleosis and carcinoma of the cervix (see below). The involvement of human adenoviruses in tumor production was first reported in 1962 by Trentin who observed that inoculation of newborn hamsters with adenovirus type 12 resulted in the formation of sarcomas. Several other types (3, 7, 14, 18, 21, 31) have also proved oncogenic in newborn hamsters, mice and rats. The Picodnavirus group includes a number of small (20 m μ) viruses that were recently found in association with various stocks of human adenoviruses (e.g., oncogenic type 18) and are called adeno-associated viruses (AAV). These viruses appear to be defective as they cannot replicate without the presence of adenoviruses. They are antigenically distinct from adenoviruses with which they associate and their role in adenovirus pathogenesis is still obscure.

In the papovavirus group, the human wart virus, the simian vacuolating virus (SV40) and the polyoma virus of mice are included. The vacuolating virus is a common indigenous virus of the kidneys of rhesus and cynomolgous monkeys. It is present in a large percentage of cell cultures derived from such kidneys without causing an observable cytopathic effect. However, if passed into kidney cell cul-

tures derived from African green monkeys, a marked cytopathic effect (Vacuole formation) is observed. Eddy showed in 1962, that SV40 produces sarcomas and ependymomas when inoculated into newborn hamsters. These tumors are free of virus and can be grown in vitro as cell cultures with retention of their tumorigenesis. The virus transforms embryonic hamster, mouse and human (fibroblasts) cell cultures which are also virus-free but tumorigenic. It is now known that millions of people who were administered live or heat-killed (SV40 is more resistant to heat than many vaccine viruses) viral vaccines prior to 1962 were also inadvertently infected with SV40. Although certain epidemiological data suggested that neoplasm occurred at a higher rate in people who had received SV40 contaminated vaccines than those who did not, definite proof for this relationship is yet to be established.

The discovery of polyoma virus was accompanied with a great scientific fervor throughout the world as this virus proved to possess a dual effect and cause both necrotization and proliferation of the same cell type (mesenchymal cells of newborn hamster kidneys). Polyoma virus-induced kidney sarcomas in newborn hamsters become virus-free at later stages of development. This finding indicated for the first time that the presence of the causative virus was not necessary for the progress of tumor development (trigger mechanism). The observation that polyoma virus can cross species boundaries and induce tumors not only in mice (from which it was originally isolated), but also in newborn hamsters and rats, was also of great significance. In mouse embryo cell cultures, polyoma virus causes mainly cytopathic effect associated with virus production but also transformation of cells which become virus-free (in vitro dual effect). In embryonic hamster cells, however, the main effect is virus-free cell transformation.

The growth of adenovirus type 7 in SV40 contaminated Rhesus monkey kidney cell cultures (which often are) has resulted in the formation of a mixture of adenovirus type 7 and a hybrid virus consisting of the genetic core of SV40 and the protein coat of the adenovirus. Pure adenovirus type 7 cannot, by itself, grow in resistant monkey kidney cell cultures and needs the help of the hybrid virus; hence the latter is called "particle aiding the replication of adenovirus" (PARA). On the other hand, PARA is defective and needs the help of the adenovirus for replication in monkey kidney cell cultures. Inoculation of the mixture into monkey kidney cell cultures results in the production of both the adenovirus and the PARA virus, but inoculation into human kidney cell cultures results in the production of

only the adenovirus because PARA cannot grow in human cells even in the presence of the adenovirus. This mixture, treated with SV40 antiserum to block any contaminating SV40 virus, produces SV40-type tumors in hamsters and transforms cell cultures in vitro with the formation of specific T antigen (see below). Exchange of the adenovirus type 7 coat on the PARA virus with the protein coat of another nononcogenic adenovirus (types 2, 5, 6, etc.) has been achieved (transcapsidation). The new hybrid becomes oncogenic for newborn hamsters.

Animal tumors induced by tumorigenic adenoviruses, SV40 and polyoma virus were thought to become completely free of infectious virus. Incomplete viral particles, however, were observed in adenovirus type 12 hamster tumors. More recent observations have indicated that at least in adenovirus and SV40-induced tumors, a very low concentration of infectious virus can be demonstrated by highly sensitive detection systems.^{3, 4} Whether this low level of virus replication takes place in tumor cells or in other cells, has not yet been determined. The above findings emphasize the need for the development of more sensitive detection methods for viral agents which may be present in very low concentrations or in a defective or masked form in human tumors.

Virus-Induced Tumor Antigens

One of the important findings in recent years was the discovery that virus-induced tumor cells and virus-transformed cells contain specific antigens which, though induced by virus, are antigenically unrelated to either the inducing viruses or the affected cells. The best known of these antigens, now called the T antigen, was first detected in the nuclei of SV40-induced hamster tumors by either the fluorescent antibody technique or complement fixation test using sera from hamsters bearing large SV40-induced tumors. The antigen is specific, as it does not react with sera of hamsters bearing polyoma or adenovirus-induced tumors. The T antigen of the in vitro-transformed cells possesses similar specificity. In addition to polyoma-induced tumor and transformed cells, specific T antigens have been detected in SV40 and adenovirus-induced tumors and transformed cells. The second antigen, referred to as the transplantation antigen, was detected by the observation that when young adult hamsters were injected with SV40 virus (to which they are resistant at this age), they become resistant to SV40 tumor cells or transformed cells (which normally induce tumors in adult hamsters). Since this resistance is not mediated by circulating SV40 antibodies, it is believed that SV40 produces a new transplantation

antigen in certain cells of the adult hamster and this antigen in turn induces the antibodies (not viral) which are responsible for the subsequently observed rejection of tumor or transformed cells. The transplantation antigen has also been demonstrated for polyoma and adenoviruses. Here again, the need for sophisticated and novel detection systems for the viral etiology of neoplastic diseases is clearly indicated.

Recent Virologic Studies of Human Neoplasms

The use of standard microscopic, serologic and isolation methods for the incrimination of viruses in human cancers has met with complete failure. Now and then, positive reports appear in the literature but they have been generally followed by either withdrawal by the authors or disapproval by other workers. Cancer virologists have proven wrong so many times that presently a sense of extraordinary caution is prevailing among them. The reason for these controversies is twofold. Firstly, a number of the so-called viruses isolated, mainly in cell cultures, from human cancers were shown to be pleuropneumonia-like organisms (PPLO) which may resemble viruses in size and shape and can go through filters that retain bacteria. Secondly, most if not all of the viruses isolated from cancer patients in laboratory animals have proved either definitely or most probably indigenous viruses of the inoculated animals and not of the cancers. Virologic studies of human neoplasms are greatly handicapped by the obvious lack of susceptible hosts for experimentation. Presently, newborn primates are utilized for such studies, but as of this writing no agent has been isolated. Human cancers may contain a very low concentration of the causative virus and this may be present in a defective form for whose isolation the presently available systems may not be sufficiently sensitive. The most important findings of recent years are outlined below.

Virus-like Particles in Human Cancers

Virus-like particles have been observed by electron microscopy in the plasma of a significant percentage of leukemia patients. These particles resemble viruses of avian and murine leukemias and are generally called C-type particles. They measure 70-100 m μ and have a centrally located electron-dense nucleoid which is separated from the outer membrane by an electron-lucid area (halo). The C-type particles have also been observed in various solid tumors. Since no biologic activity has been demonstrated for these particles, their role in the etiology of human cancers remains undetermined.⁵

Burkitt's Lymphoma

In 1958, Burkitt described a lymphoma (mainly of the jaw) among children living in warm humid lowlands of Uganda, Africa. Epidemiologic observations suggested the possibility of an arthropod-borne virus as the etiologic agent. Subsequently, the same type of tumor was reported from many different regions of the world. Although a number of different viruses (reovirus, echovirus, herpes simplex) have been isolated from such tumors, none, with the possible exception of reovirus type 3, could be etiologically linked with the tumors. Since reovirus type 3 can induce a Burkitt-like lymphoma in mice and has been repeatedly isolated from mosquitoes, its role in Burkitt's lymphoma has been strongly stressed. However, more recent data indicate that reovirus type 3 is most likely a passenger virus and hence etiologically unrelated to the tumors.

A number of cell lines (lymphoblasts), which grow indefinitely in vitro have been derived from Burkitt's lymphomas. Electron microscopic examination revealed the presence of herpes-like particles in many of these cell cultures. The particle is referred to as EB virus after the cell line in which it was first seen. Particles similar to EB virus have been detected by immunofluorescence technique or electron microscopy, or both, in cell cultures established from blast cells of leukemic patients, peripheral leukocytes of infectious mononucleosis patients (see below) as well as from hemopoietic cells of seemingly normal individuals. Attempts to demonstrate biologic activity for EB virus in such cultured cells have generally been unsuccessful. Although EB virus resembles herpesvirus structurally, it is biologically and antigenically distinct from all known members of the herpesvirus group. Antibodies to EB virus are widely spread among various human populations. As yet no etiologic role for EB virus in Burkitt's lymphomas has been established. However, intracerebral inoculation of hamsters with EB virus-containing cell cultures derived from Burkitt's lymphoma, has produced a fatal central nervous syndrome which can be serially transmitted in the same host.⁶ Moreover, cell-free extracts from various Burkitt's lymphomas have caused morphological changes in human amnion cell cultures and this effect has been accompanied with resistance of such cell cultures to infection by a variety of viruses.⁷ The significance of the above findings is still unclear.

EB Virus and Infectious Mononucleosis

The involvement of EB virus in infectious mononucleosis is mainly due to a fortuitous observation in a research technician who was engaged in work

dealing with EB virus-containing cell cultures. This technician's leukocytes were known not to grow in vitro and her plasma was devoid of EB virus antibodies. However, after recovery from an episode of laboratory-proven infectious mononucleosis, her leukocytes grew in cell culture and her plasma contained antibodies to both the EB virus and the heterophile antigen. The above observation led to an extensive investigation of the role of EB virus in infectious mononucleosis. In a significant number of patients with infectious mononucleosis, the appearance of antibodies against EB virus early in the disease and their rise to a peak within a few weeks were confirmed. These antibodies were not present prior to the onset of the disease. They were different from heterophile antibodies and persisted for many years. Moreover, while in 268 college students who did not have EB virus antibodies, infectious mononucleosis developed in 15 per cent, none of the 94 students who possessed EB virus antibodies, developed the disease. EB virus antibodies not only correlated with heterophile antibodies in all infectious mononucleosis patients developing the latter antibodies, but were also detected in six clinically and hematologically typical cases who never produced heterophile antibodies. The appearance and persistence of EB virus antibodies have been detected by both the indirect fluorescent antibody technique and the complement fixation test. A number of continuous cell cultures have been established from peripheral leukocytes of infectious mononucleosis patients. These cell cultures frequently contain EB virus. This, as well as the serologic observations outlined above, has led a number of investigators to believe that either EB virus or an agent closely related to it, is the etiologic agent of infectious mononucleosis.⁸

Cervical Cancer and Herpes Simplex Virus

The etiologic involvement of a venereally-transmitted agent was suggested by epidemiologic studies which showed that an increased incidence of carcinoma of the cervix was associated with uncircumcised male partners, early age of first coitus and multiple sex partners. Attempts at isolation revealed the presence of only herpes simplex virus in carcinomatous cervical tissues and smegma specimens. The virus, however, differed from strains found in the oral cavity both biologically and antigenically and was designated herpes simplex type 2 (the oral strains were designated type 1). Further studies utilizing a specialized neutralization test which readily differentiated between the two types, revealed that type 2 antibodies were present in 83 per cent of patients with cervical carcinoma as compared to only

0 to 20 per cent in matched and random controls and in patients with other types of cancer. These results have been interpreted to suggest a carcinogenic or co-carcinogenic role for herpesvirus type 2 in the carcinoma of the cervix.⁹

Summary and Conclusions

That viral agents (both RNA and DNA viruses) can cause certain malignant cancers in animals and a few benign neoplasms in man (warts, histiocytomas induced by Yaba tumor virus, molluscum contagiosum) is well established. The difficulty in linking viruses with human neoplasms is largely due to two main factors. Firstly, many animal tumors of established viral etiology become virus-free shortly after initiation, and the etiologic involvement of the causative agent at this stage can only be established by the presence of new antigens (unrelated to either the causative virus or the cancer cell) which require unorthodox procedures for their detection. Moreover, certain tumorigenic viruses exist in a defective form that does not show any biologic activity unless it is associated with another helper virus. Secondly, the obvious unavailability of susceptible hosts for pathogenic and immunologic (detection of tumor antigens) experimentations. The use of newborn primates, however, may yield positive results in the near future. Since there is ample indirect evidence for the etiologic involvement of viruses in at least certain types of human neoplasms, it is hoped that the new sophisticated methods and procedures which are now being developed and utilized by cancer virologists will soon produce positive results.

References

- For General Reviews, see:
- A. Macpherson, I.: Recent advances in the study of viral oncogenesis. *Brit. Med. Bulletin* 23:144-149, May 1967.
 - B. Melnick, J. L.: Defective DNA viruses and cancer. *Lloydia* 30:349-363, 1967.
 - C. Dulbecco, R.: The induction of cancer by viruses. *Sc. Am.* 216(4):28-37, 1967.
 1. Melnick, J. L.: Editorial note and summary of classification of animal viruses, 1967. *Progr. Med. Virology* 9:483-485, 1967.
 2. Behbehani, A. M.; Bolano, C. R.; Kamitsuka, P. S. and Wenner, H. A.: Yaba tumor virus. I. Studies on pathogenesis and immunity. *Proc. Soc. Exp. Biol. & Med.* 129:556-561, 1968.
 3. Marti, A.; Connor, J. D. and Sigel, M. M.: Recovery of infectious virus from adenovirus type 12 tumor cells. *J. Nat. Cancer Institute* 40(2):243-247, 1968.
 4. Kit, S.; Kurimura, T.; Salvi, M. L. and Dubbs, D. R.: Activation of infectious SV40 DNA synthesis in transformed cells. *Proc. Nat. Acad. Sciences* 60:1239-1246, 1968.
 5. Seman, G. and Seman, C.: Electron microscopic search for virus particles in patients with leukemia and lymphoma. *Cancer* 22:1033-1045, 1968.
 6. Stewart, S. E.; Glazer, D.; Ben, T. and Lloyd, B. J.: Studies on the hamster-brain passage virus recovered from human lymphoma cultures. *J. Nat. Cancer Inst.* 40:423-428, 1968.

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Inborn Errors of Metabolism

A Diagnostic Consideration in Mental Retardation

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IN CASES OF delayed development in infancy it is frequently difficult to be sure whether mental retardation is present or not. Even when signs of mental retardation are unmistakably present, the physician is often unable to determine a specific diagnosis in the vast majority of patients. The desirability of establishing a precise diagnosis is immediately apparent when one is called upon by parents to provide them with advice regarding the chances of bearing another affected child. Of more immediate importance is the responsibility of the physician for the recognition of diseases in which it is possible to *prevent* mental retardation by early diagnosis and prompt initiation of specific therapy. Creatinism, subdural hematoma, progressive hydrocephalus and hyperbilirubinemia are examples of such conditions. The frequently used and meaningless designation, "cerebral palsy," is often applied to the retarded patient. This descriptive phrase offers no insight into the pathogenesis of the disease and no basis for specific treatment, prevention, or genetic counseling of affected families. Such diverse conditions as anoxic encephalopathy, homocystinuria and Charcot-Marie-Tooth disease may be labeled "cerebral palsy," yet the prognosis, treatment and advice to their families will be quite different.

Discussion

During the past ten years a number of "new" metabolic diseases, some of which may be associated with mental retardation, have been recognized and are collectively referred to as inborn errors of metabolism.¹⁻⁶ These genetically determined diseases have as their basis or primary pathology, an alteration of a specific protein. This alteration may be manifested by an abnormal structure of the protein (i.e., abnormal hemoglobin in sickle cell anemia) or by a reduction in amount or absence of the protein (anti-hemophilic globulin deficiency in hemophilia). Many of the inherited diseases transmitted by autosomal recessive mechanisms result from an alteration in catalytically-active proteins called enzymes. One of the most common and widely known of these disorders is phenyl-

ketonuria (PKU). The biochemical abnormalities result from a deficiency of the enzyme, phenylalanine hydroxylase. This enzymatic deficiency is reflected by an increased concentration of phenylalanine in blood and the presence of abnormal acidic compounds (phenylpyruvic acid and orthohydroxyphenylacetic

The inborn errors of metabolism constitute a heterogeneous group of genetically-determined diseases many of which may be associated with mental retardation. There is now abundant evidence that specific therapy, initiated early in life, may prevent the crippling effects of mental retardation associated with some of these diseases. The detection of these disorders depends upon the recognition of "high risk" patients and the availability and application of diagnostic biochemical screening tests. An outline of chemical screening tests is presented which may be performed in any hospital laboratory. A comprehensive chromatographic screening test is available to all physicians throughout the state in the Metabolic Research Laboratory of the University Hospital. The use of this facility is encouraged and may be expected to result in the earlier diagnosis of inborn errors of metabolism, the prevention of some cases of mental retardation and as a source of information for informed genetic counseling of families.

acid) in the urine. Although the pathogenesis of the mental retardation in PKU is unknown, there is abundant evidence that indicates that the retardation may be prevented by the early institution of a phenylalanine-restricted diet designed to maintain a near normal level of phenylalanine in blood. This has led to the enactment of state laws requiring testing by means of the Guthrie test for this disease in the newborn period.

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Apart from phenylketonuria there are a number of other inborn errors of protein and carbohydrate metabolism in which there is either theoretical or practical evidence that early correction of the biochemical defect will prevent the physical and mental handicaps associated with the disease.⁷⁻⁹ Successful treatment in all of these disorders is dependent upon initiation of therapy in the neonatal period and, thus, on early diagnosis.

The diagnosis of these metabolic errors is established by the demonstration in body fluids of increased levels of certain amino acids, sugars or intermediary products of metabolism which result from a block (enzyme deficiency) in the normal metabolic pathway. In some diseases (i.e., galactosemia) it is reasonably easy to demonstrate the specific enzymatic deficiency itself in body tissues.

A number of test tube screening tests applied to urine have been developed which, when positive, will permit a presumptive diagnosis to be made. These series of tests are simple to perform, easy to interpret and require a minimum of working time. The reagents required are inexpensive and can be prepared easily in any hospital laboratory. *Appendix 1* to this paper outlines the preparation of reagents, performance and interpretation of these chemical screening tests. Although this battery of tests does not cover all of the inborn errors of metabolism, it does include examinations for most of the more commonly occurring diseases. It should be emphasized that a positive test does not establish a definitive diagnosis but indicates the need for further more specific confirmatory examinations.¹⁰

Efron and her associates¹¹ developed a screening procedure which is both comprehensive and applicable to large numbers of patients. This screening technique involves the separation and identification of amino acids and sugars by means of one-dimensional paper chromatography. Specimens of blood and urine are collected on a piece of highly absorbent filter paper (identical to that supplied by the state for the Guthrie PKU screening test), dried overnight and mailed in an ordinary envelope to the laboratory (see *Appendix 2*). By processing the blood and urine samples contained on the filter paper it is possible to detect most of the inborn errors of protein and carbohydrate metabolism. The advantages of this technique are the simple manner by which specimens are collected and shipped to the laboratory, that specimens from many patients may be processed in the laboratory simultaneously and that most of the diseases in question may be detected by this inexpensive yet comprehensive procedure.

These chemical and chromatographic screening tests have been utilized at the University Hospital for

the past three years. They have proven to be valuable aids in clinical diagnosis as well as instruments of instruction in various teaching programs of the Medical Center. They have been applied to patients who are considered at "high risk" for having one of the inborn errors of metabolism. This high risk group includes the following categories of patients: (1) prior case in the family of a known disease; (2) a family history of mental retardation; (3) the presence of unexplained, non-lateralized neurologic dysfunction; (4) the presence of other evidence of metabolic dysfunction such as hypoglycemia, acidosis or ketosis; (5) the presence of infantile spasms, or the electroencephalographic abnormality, hypsarhythmia, or both. On theoretical grounds, all newborns are at risk and should perhaps be screened for these diseases. There are several pilot studies in progress testing the feasibility of applying chromatographic screening tests to all newborns.

When a presumptive positive screening test is found, further more detailed tests must be performed before a definite diagnosis can be established. The author's laboratory has been engaged in carrying out screening and confirmatory tests for inborn errors of metabolism since it was established three years ago. The chromatographic screening test has been established as a routine examination available to inpatients by the general hospital laboratory. All positive tests uncovered by the screening procedure are referred to the Metabolic Research laboratory of the Section of Neurology for further study. The Efron screening test is available to all physicians within the state who require its use and the method for collecting blood and urine samples is outlined in *Appendix 2*. It is hoped that the availability and use of the chromatographic screening test will result in the earlier diagnosis and treatment of larger numbers of affected patients. The Efron test should not be considered a substitute for the presently employed Guthrie test for phenylketonuria since the microbiological assay for phenylalanine (Guthrie) is more sensitive than the presently employed paper chromatographic procedures. The Guthrie test is, however, specific for hyperphenylalaninemia and will not uncover any of the other inborn errors.

References

1. Nyhan, W. L. (editor): *Amino Acid Metabolism and Genetic Variation*. New York, McGraw-Hill, 1967.
2. Stanbury, J. B.; Wyngaarden, J. B. and Frederickson, D. S. (eds.): *The Metabolic Basis of Inherited Disease*, Second Edition. New York, McGraw-Hill, 1965.
3. Efron, M. L.: Aminoaciduria. *New Eng. J. Med.* 272: 1058-1067, 1107-1113, 1965.
4. Efron, M. L. and Ampola, M. G.: The aminoacidurias. *Ped. Clinics N. Amer.* 14:881-903, 1967.
5. Waisman, H. A.: Some newer inborn errors of metabolism. *Ped. Clinics N. Amer.* 13:469-501, 1966.

6. O'Brien, D.: *Rare Inborn Errors of Metabolism in Children With Mental Retardation*. Children's Bureau Publication Number 429-1965, U. S. Govt. Printing Office, Washington, 1965.

7. Waisman, H. A. and Kerr, G. K.: Advantages and disadvantages in the use of restricted diets in the treatment of inborn errors of metabolism. In *Amino Acid Metabolism and Genetic Variation*, edited by W. L. Nyhan. New York, McGraw-Hill, 1967.

8. Hsia, D. Y. (editor): Symposium: Treatment of

amino acid disorders. *Amer. J. Dis. Child.* 113:1-176, 1967.

9. Lowe, C. U. et al: Nutritional management in hereditary metabolic disease. *Pediatrics* 40:289-304, 1967.

10. White, H. H.: Separation of amino acids in physiological fluids by two-dimensional thin-layer chromatography. *Clin. Chim. Acta* 21:297-302, 1968.

11. Efron, M. L.; Young, D.; Moser, H. W. and MacCreedy, R. A.: A simple chromatographic screening test for the detection of disorders of amino acid metabolism. *New Eng. J. Med.* 270:1378-1383, 1964.

APPENDIX 1

METABOLIC SCREENING TESTS

Disease	FeCl ₃	DNPH	Benedict's	Nitroprusside	Nitroso-naphthol	CTAB	Ninhydrin	Sulfosalicylic Acid
Phenylketonuria	Blue-green	+++	-	-	-	-	±	-
Maple syrup urine	Blue	+++	-	-	-	-	+	-
Tyrosinosis (emia)	Green (fades quick)	+++	±	-	+	-	+	+
Tyrosyluria	Green	+++	-	-	+	-	-	-
Histidinemia	Green	++	-	-	-	-	-	-
Hyperglycinemia	-	+++	-	-	-	-	±	-
Hartnup's Disease	-	-	-	-	-	-	+	-
Fructose Intolerance	-	-	+	-	-	-	-	-
Galactosemia	-	-	+	-	-	-	+	-
Homocystinuria	-	-	-	+	-	-	±	-
Cystinuria	-	-	-	+	-	-	+	-
Wilson's Disease	-	-	-	-	-	-	+	-
Cystinosis	-	-	±	-	-	-	+	+
Lowe's Syndrome	-	-	±	-	-	-	+	+
Mucopolysaccharidoses	-	-	-	-	-	+	-	-
Salicylates	Purple	-	-	-	-	-	-	-
Phenothiazines	Purple	-	-	-	-	-	-	-
Acetone		+++						

Tests Procedures

I. Ferric chloride

To 1 ml of ferric chloride reagent in a test tube, add ten drops of urine. Mix and observe color within two to three minutes.

II. Dinitrophenylhydrazine

To 1 ml of *clear* urine in a test tube, add 4 ml of DNPH reagent. A yellow ppt. within one minute is a positive reaction.

III. Benedict's Test

5 ml of Benedict's solution is placed in a test tube. Add eight drops of urine and mix well. Place in a boiling water bath three minutes and allow to cool slowly. In the presence of a reducing substance the body of solution will be filled with a precipitate which may be red, yellow or green in color, depending upon the amount of sugar present. An alternate method is the use of Clinitest reagent *tablets* (not strips) in the manner described by the manufacturer.

IV. Nitroprusside Test—(two methods)

If the reagent is prepared in crystal form add a pinch of the combined reagents to 2 ml of

urine, mix and observe for the pink to beet-red color.

If the reagents are prepared in liquid form, to 1 ml of urine add 12 drops of the sodium cyanide solution. Mix and allow to stand for five minutes. Then add one drop of sodium nitroprusside solution and shake. Immediate pink-to-red color is a positive test.

V. Nitrosonaphthol Test

Place 1 ml of the 2.63N nitric acid in a test tube. Add one drop of sodium nitrate solution and then ten drops of nitrosonaphthol reagent. The tube is agitated to mix the solutions and then three drops of urine are added and the tube is again agitated. An orange-red color within three to five minutes indicates a positive test.

VI. Cetyltrimethylammonium Bromide Test

Add six drops of the CTAB reagent to 1 ml of *clear* urine. Mix and examine after ten minutes. The appearance of a cloudy precipitate or flocculate indicates a positive test.

VII. Ninhydrin Test

1 ml of the ninhydrin reagent is placed in a test tube. Three drops of urine are added and the

tube mixed by agitation. Examine after standing for three to five minutes at room temperature. The presence of a blue or purple color is a positive test.

VIII. Sulfosalicylic Acid Test

Add three drops of the sulfosalicylic acid solution to 1 ml of *clear* urine. A cloudy precipitate indicates an excess amount of protein in the urine.

Reagents (Store I, II, III, IV B, V & VII in refrigerator)

I. 10% Ferric chloride:

- 10 grams ferric chloride dissolved in 100 ml 2N HCl
- 2N HCl – 17 ml concentrated HCl + 85 ml of water

II. 0.1% 2,4-dinitrophenylhydrazine (DNPH) in 2N HCl:

To 100 mg DNPH add 85 ml water; mix. Add 15 ml concentrated HCl. Shake for 30 minutes, allow to settle, use supernatant for test. Store in brown bottle.

III. Benedict's Solution:

- Copper sulfate 17.3 grams
- Sodium citrate 173.0 grams
- Sodium carbonate 100.0 grams
- Water q.s. 1 liter

With aid of heat dissolve the sodium citrate and carbonate in 800 ml water. Pour (through filter paper) into a graduated cylinder and make up to 850 ml. Dissolve copper sulfate in 100 ml water. Pour citrate-carbonate solution into a large beaker and add the copper sulfate solution slowly, stirring, and make up to one liter.

Clinitest tablets may be substituted for Benedict's solution.

IV. A. Cyanide-Nitroprusside Crystals:

Part A

- 200 gms anhydrous ammonium sulfate
- 2.0 gms sodium nitroprusside

Mix (1) and (2) in mortar and put in wide mouth polyethylene jar. *Mix well.*

Part B

- 200 gms anhydrous sodium carbonate
- 1.0 gms sodium cyanide

Mix (3) and (4) and put in another polyethylene jar. *Mix well.*

Add equal parts of A and B together just prior to use.

IV. B. Cyanide-Nitroprusside Solutions:

- 5.0 gms of sodium cyanide are dissolved in 100 ml water
- 5.0 gms of sodium nitroprusside are dissolved in 100 ml water

V. Nitrosonaphthol:

- 2.63N nitric acid is prepared by adding one part of concentrated nitric acid to five parts of water

- 2.5 gms of sodium nitrite is dissolved in 100 ml water
- 100 mg of 1-nitroso-2-naphthol is dissolved in 100 ml of 95% ethanol

VI. Cetyltrimethylammonium Bromide Solution

- Prepare a 1.0M sodium citrate buffer, pH 5.75; by dissolving 210 gms of citric acid monohydrate in 500 ml water, add 150 ml of 20N sodium hydroxide, mix well and allow to come to room temperature. The pH is then adjusted, with a pH meter, to 5.75 by the addition of 20N sodium hydroxide (about 15 ml). The buffer is then taken to a volume of 1000 ml with water.
- 25 gms of cetyltrimethylammonium bromide is dissolved in 1000 ml of the citrate buffer, warming as necessary to facilitate dissolving.

VII. Ninhydrin Solution:

- 1.0 gm of ninhydrin is dissolved in 500 ml of 95% ethanol.

VIII. Sulfosalicylic Acid Solution:

- 20.0 gms of sulfosalicylic acid is dissolved in 100 ml water.

References to Appendix I

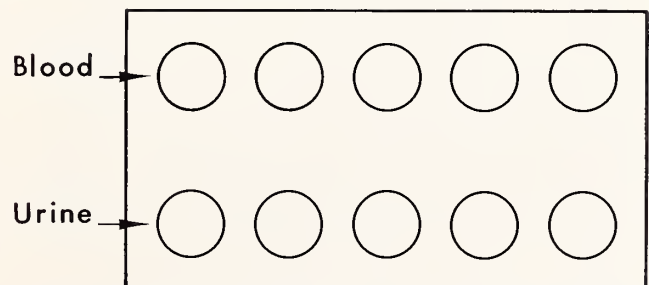
- Salicylates and phenothiazines. *JAMA* 170:1052, 1959.
- General article regarding screening. *Arch. Neurol.* 6:462, 1962.
- Ferric chloride and Phenistix tests. *JAMA* 188:720, 1964.
- Nitroprusside test. *Clin. Chem.* 7:674, 1961.
- Stanbury, *et al.*: DNPH reagent and test. *The Metabolic Basis of Inherited Disease*. Blakiston, 1960 p. 481-482.
- Hawk, *et al.*: Benedict's test (p. 57) and Benedict's solution (p. 1222). *Practical Physiological Chemistry*, 12th Ed. Blakiston, 1954.
- General article regarding screening tests (CTAB test, nitrosonaphthol test, ninhydrin test, and sulfosalicylic acid test). *Canad. Med. Assoc. J.* 95:89, 1966.

APPENDIX 2

INSTRUCTION SHEET FOR COLLECTION OF SAMPLES OF BLOOD AND URINE FOR CHROMATOGRAPHY

A piece of highly absorbent filter paper (approximately 5 x 6 inches) is provided for collection of samples.

It is desirable to obtain four or five spots each of blood and urine in the following manner:



Whole blood (from heel or venous puncture) and fresh voided urine should be applied to the paper in

(Continued on page 158)

Drugs and Heredity

Pharmacogenetics—The Study of Heritable Variations in Drug Response

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IT IS WELL KNOWN that people respond differently to drugs. Clinicians are all familiar with the fact that in certain patients, toxicity may occur during or even prior to a therapeutic response with a given drug, whereas with other drugs or with other patients no such phenomenon occurs. Hypersensitivity, idiosyncrasy, intolerance or drug allergy are terms invoked to describe such occurrences, usually without regard to pathogenesis. Until recently, the reasons for variations in drug response were largely obscure. Most workers felt that unusual drug reactions were not strictly abnormal, but merely represented the extreme end of the normal distribution curve. It is probably true that many drug reactions are of this type. On the other hand, certain individual drug responses have been shown to be clearly outside the normal distribution. These latter responses were often quite reproducible and usually were "all-or-none" in type. Furthermore, examination of the family of such unusual responders often uncovered others with similar reactions to the same drug. Careful study of these index families has resulted in the discovery of a number of heritable abnormalities in drug biotransformation, and has led to the emergence of the comparatively new science of *pharmacogenetics*, a discipline based on the study of genetically determined variations revealed by the effects of drugs.

ISONIAZID. Isoniazid (n-isonicotinyl hydrazide, INH) has been known to be effective against *M. tuberculosis* since 1952. Shortly after the introduction of this compound, studies of the urinary excretion patterns of the free drug revealed a distinctly bimodal distribution, leading to the hypothesis that patients were either slow or rapid inactivators of INH. Slow inactivators were subsequently found to be homozygous for an autosomal recessive genetic defect recognizable by the presence of markedly diminished levels of an hepatic acetylating enzyme necessary for INH detoxification.¹ Rapid inactivators had either normal or half-normal enzyme levels, and

the latter group was found by family study to be heterozygous. Initially, it was postulated that rapid inactivators would have a lesser therapeutic response to the drug. Although conflicting studies have appeared, slow or rapid inactivation seems to be of

Variations in response to drugs has been of importance to clinicians, though the reasons for its occurrence are not always apparent. The genetic basis for some is established, and for others is suspected. Variable drug responses are discussed with this in mind.

little consequence with regard to the antimicrobial activity of this agent. Of more importance was the finding that the most common side-effect of the drug, peripheral neuropathy, was essentially confined to slow inactivators.

Other pharmacologic compounds with similar structure now have been found to be acetylated by the same enzyme. The antihypertensive agent hydralazine, certain sulfonamides, and the antidepressant phenylzine appear to be similarly detoxified, and large doses or prolonged administration of these drugs would be expected to produce toxicity in patients homozygous for slow inactivation. For example, the development of positive L.E. cell tests and anti-nuclear antibodies after hydralazine is much more common in slow inactivators.²

A by-product of the INH studies was the discovery that at least one other acetylating system exists, since another antituberculous agent, para-amino salicylic acid (PAS), and another chemotherapeutic preparation, sulfanilamide, are acetylated at the same rate in both slow and rapid inactivators.

SUCCINYL CHOLINE. The surgical use of the muscle-relaxant succinyl choline (suxamethonium) led to the discovery of another human enzyme defect. Patients who exhibited prolonged apnea after administration of this drug were found to be deficient in the serum enzyme, pseudocholinesterase.³

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Supported in part by Clinical Pharmacology-Toxicology Grant GM15956.

This enzyme is distinct from true cholinesterase which catalyzes the hydrolysis of the neurotransmitter acetylcholine, and evidently is most active against other choline esters. The defect is inherited as an autosomal recessive trait, with affected individuals homozygous for the mutant gene. The abnormality is detected *in vitro* with the local anesthetic, dibucaine, which has been found to have up to four times the inhibitory affect on the normal enzyme as compared to the atypical variant. Fluoride will inhibit both enzymes to a comparable degree. Another variant has been found which is sensitive to dibucaine but resistant to fluoride. A fourth allele at this genetic locus is the "silent" gene, so called because individuals possessing this gene in homozygous form have virtually no pseudocholinesterase activity at all, and, of course, are acutely sensitive to succinyl choline.

Although these mutant genes are reputedly rare, affected individuals may be more common than generally realized. The normal enzyme activity is maintained for some time in bank blood, and since many patients receive whole blood transfusions during surgery, the abnormal genotype might be obscured. In fact, whole blood transfusions have been recommended as therapy for the patient with succinyl choline sensitivity.

CATALASE DEFICIENCY. The absence of tissue catalase which catalyzes the hydrolysis of hydrogen peroxide and other naturally occurring peroxides was first demonstrated in Japan by Takahara.⁴ As is true in the case of most enzyme deficiencies, the affected patients are homozygous for an autosomal recessive defect. They usually present with repeated oronasal sepsis, which fortunately can be essentially cured by complete dental extraction. The gene is fairly frequent in Orientals, less so in other races. Electrophoretic and immunological studies have revealed a complete lack of catalase-like protein in these Asiatics. In contrast, a Swiss variant has been described in which tissue catalase is present but in greatly reduced amounts.⁵ The European acatalasemic apparently does not suffer from oronasal sepsis, probably because of the slight residual enzyme activity.

DEFECTIVE HYDROXYLATION OF DIPHENYLHYDANTOIN. Virtually everyone consuming the anti-convulsant diphenylhydantoin in daily doses of 600 mg or more will develop signs of toxicity. One family has been described in which three members showed toxic symptoms on the usual dose of 300 mg per day.⁶ Investigation of this family revealed an inability to metabolize the drug via the normal route of hydroxylation. Other drugs such as phenobarbital or the amino acid, phenylalanine, were normally hy-

droxylated, suggesting that the defect was confined to the molecular structure of diphenylhydantoin. How prevalent this defect may be is unknown, but those seizure patients who develop significant drug side effects while ingesting normal doses of the agent might well prove worthy of study. In view of the increasingly widespread intravenous use of diphenylhydantoin in cardiac arrhythmias, certain genetically predisposed individuals might be unduly susceptible to this agent. A number of deaths have now been reported after acute administration of diphenylhydantoin, and although no studies were performed it is possible that genetically defective drug metabolism may have contributed to the patient's demise.

GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY. This erythrocyte defect was first uncovered by workers investigating the antimalarial drug, primaquine.⁷ Administration of this drug and chemically related compounds resulted in brisk hemolysis in some patients. A deficiency of the enzyme, glucose-6-phosphate dehydrogenase (G-6-PD), an important intermediary in red cell carbohydrate metabolism, results in an inability to maintain the structural integrity of the cell wall in the presence of these drugs. Subsequently, a vast array of compounds have been incriminated as hemolytic agents in G-6-PD deficient individuals, many of which are commonly used in the therapeutic armamentarium (*Table 1*). Genetic investigation uncovered an X-linked recessive inheritance pattern for this defect. A whole series of variants has now been described differing one from another on the basis of differing electrophoretic, immunologic, or enzymatic features. The most common variety occurs in Negroes with a frequency as high as 15 per cent in some parts of the United States. Unquestionably, G-6-PD deficiency represents an extremely important cause of anemia in Negro males. This inherited abnormality is not a defect in drug metabolism *per se*, but it illustrates the point that side effects can be caused by the interaction of a normally-metabolized drug with a genetically susceptible individual.

ABNORMAL HEMOGLOBINS AND DRUG INTERACTION. Hemoglobin Zürich and hemoglobin Seattle are two abnormal hemoglobins with different amino-acid substitutions in their respective beta chains.⁸ These single amino-acid alterations occur near the heme group and render the molecule unstable in the presence of sulfa drugs with consequent hemolysis. The exact mechanism whereby sulfa drugs interact with the abnormal amino-acid is presently unknown.

Methemoglobin formation can occur in people with structurally normal hemoglobin as a conse-

TABLE 1
PARTIAL LIST OF COMPOUNDS KNOWN
TO CAUSE HEMOLYSIS IN INDIVIDUALS
WITH GLUCOSE-6-PHOSPHATE
DEHYDROGENASE DEFICIENCY

<i>Antimalarials</i>	<i>Sulfonamides</i>
primaquine	sulfanilamide
pamaquine	sulfacetamide
pentaquine	sulfamethoxypridazine
plasmoquine	(Kynex)
quinacrine (Atabrine)	salicylazosulfapyridine
quinine	(Azulfadine)
	sulfisoxazole (Gantri-
<i>Antipyretics and analgesics</i>	sin)
acetylsalicylic acid	
acetanilid	<i>Sulfones</i>
acetophenetidin (Phena-	sulfoxone (Diasone)
cetin)	thiazolsulfone (Promi-
aminopyrine (Pyram-	zole)
idon)	
antipyrine	<i>Others</i>
	dimercaprol (BAL)
<i>Nitrofurans</i>	naphthalene (moth
nitrofurantoin (Fura-	balls)
dantin)	phenylhydrazine
furazolidone (Furox-	probenacid (Benemid)
one)	vitamin K (water sol-
nitrofurazone (Furacin)	uble analogues)
	chloramphenicol

quence of a genetic deficiency of the enzyme methemoglobin reductase.⁹ Methemoglobinemia may be precipitated in such people by certain antimicrobial agents and by acetanilide.

ANTICOAGULANT RESISTANCE. O'Reilly and colleagues recorded a 75-year-old man with an exceptional resistance to coumarin anticoagulants.¹⁰ Absorption and plasma binding were normal and plasma levels were proportional to dose. No other drugs were being administered and no disease other than a myocardial infarction was present. Other members of the family showed similar resistance to test doses of warfarin and bishydroxycoumarin. The responses to heparin were normal. No reason for the abnormality in this family has yet been elucidated, but an abnormal cellular receptor site for the drug has been postulated.

PROLONGED HYPOGLYCEMIA SECONDARY TO TOLBUTAMIDE. A few patients have been described with prolonged hypoglycemia after standard doses of the oral hypoglycemic agent, tolbutamide.^{11, 12} The half-life of tolbutamide was found to be prolonged in these patients, suggesting a defect in the normal

carboxylation of this drug. No family studies have been performed although these certainly should be done. Drug-induced prolonged hypoglycemia obviously has a multiplicity of causes, only one of which may be genetic. However, in view of the fact that diabetes mellitus shows strong familial aggregation, identification of a specific genetic defect in drug oxidation in one family member would be useful in preventing complications in high-risk relatives.

MULTIFACTORIAL DRUG METABOLISM. Antipyrine and phenylbutazone are two drugs whose metabolism appears to be under at least partial genetic control.¹³ Independent administration of these agents to monozygotic and dizygotic twins revealed significantly less variability in plasma half-life between monozygous than dizygous twins. Although both drugs are hydroxylated prior to excretion, different enzymes may be involved. No studies have been performed on other relatives of these twins to assess the mode of inheritance. It is likely that multiple factors are involved rather than a single gene, and for this reason identification of the potentially hypersensitive patient may be difficult.

DRUGS AS PRECIPITATING FACTORS IN GENETIC DISEASE. Barbiturates have long been known to precipitate symptoms in patients with the hepatic forms of porphyria. Although the exact reason is unknown, barbiturates apparently act as enzyme inducers and as such may promote synthesis of porphyrins. Of course, this feature of barbiturates may be advantageous in other situations. For example, the administration of phenobarbital to newborns with elevated bilirubin apparently stimulates the synthesis of glucuronyl transferase, the enzyme necessary for conjugation of this substance.

Extrapyramidal reactions secondary to phenothiazine derivatives are not uncommon. Some workers have noted an increased incidence of this type of neurologic dysfunction in the families of patients who exhibited this side-effect of phenothiazines.¹⁴ Whether or not this class of drugs unmasks latent Parkinsonism in a predisposed individual or abnormal drug metabolism evokes symptoms in an otherwise normal host has not been established. In any case it would seem wise to be cautious with phenothiazines in patients with a family history of extrapyramidal disease.

Digitalis may precipitate symptoms in patients with muscular subaortic stenosis, an autosomal dominant defect that may be symptomatic only later in life. Although evidence is conflicting, it is possible that people with an inherited inability to taste phenylthiocarbamide (PTC) or other environmental agents of similar chemical configuration may be unduly sus-

ceptible to goiter, since these agents block thyroxine synthesis.

Both adrenal cortical steroids and thiazide derivatives may unmask latent diabetes or chemically worsen established cases. In the former case, gluconeogenesis and peripheral insulin antagonism have been thought to be responsible, whereas the exact mechanism of action of the diuretic agents is obscure. Elevated levels of serum amylase have been noted in some people taking chlorthiazide suggesting a direct pancreatic effect of the drug.

DRUGS, ENZYMES AND GENETIC POLYMORPHISMS. The prevalence of many of these pharmacogenetic diseases is undoubtedly low; e.g., both coumarin resistance and defective hydroxylation of diphenylhydantoin have been described in only a single family. As such they may represent new mutations of such rarity that they do not constitute a genetic polymorphism.* Even if a gene is fairly frequent it may be impossible to determine how it reached polymorphic proportions. Patients homozygous for atypical pseudocholinesterase may occur in as many as 0.5 per cent of some populations for no apparent reason. However, it is noteworthy that potatoes, tomatoes and other solinaceous plants contain natural inhibitors to normal pseudocholinesterase whereas the atypical variant is less severely affected. Perhaps in places where people consume large amounts of these foods, a gene mutation leading to the synthesis of the atypical form will be positively selected, and the frequency of this gene will increase in that population. Alternatively, if such a mutation occurred in someone who may be subjected to succinyl choline or an environmental analogue, this genetic change might prove lethal and the gene would be negatively selected or eventually eliminated. On the other hand, it has already been mentioned that G-6-PD deficiency, a recognized cause of hemolytic anemia, may be present in as many as 15 per cent of American Negro males. This gene attains an even higher frequency in Africa and in the Mediterranean littoral. Geographic plots of the distribution of G-6-PD deficiency and falciparum malaria show considerable overlap. Current thinking revolves around the concept that heterozygous carriers and, to a lesser extent, affected patients have a selective advantage over normals in a malarial environment. The parasite apparently requires a particular metabolic en-

vironment to survive that may not be provided by the metabolically defective red cell. Furthermore, chronic hemolysis caused by the ingestion of naturally occurring "toxic" food stuffs will not allow the organism to complete its life cycle in G-6-PD deficient erythrocytes. In this country where malaria is no longer endemic, the gene frequency is lower and is probably declining, although many years must pass before this can be determined with certainty.

Many pharmacogenetic disorders now considered rare may be more frequent than currently thought, simply because large populations have not been tested. Moreover, the term "rare" refers to the absolute number in the general population rather than in a given family, where many members may have the abnormality and thus have a greatly increased risk of developing drug-associated disease. As we become more cognizant of the teratogenic potential of some drugs, it is of even more importance to recognize the effect of maternal factors on the developing fetus. For example, if for some genetic reason a pregnant woman cannot metabolize a given drug, it may cross the placenta in larger than normal quantities and damage the developing fetus. It is for these latter reasons that clinicians should be concerned with pharmacogenetics as an important segment of daily clinical practice.

The Future of Pharmacogenetics

The physician is confronted daily with adverse drug reactions. Are all of these due to inherited variations? Obviously not, as many external factors, including the disease under treatment and the effects of other drugs, may strongly influence the absorption, plasma-protein-binding, metabolism and excretion of a given pharmacologic agent. How, then, can a decision be made regarding the importance of genetic factors in the development of drug toxicity?

One method has already been mentioned; i.e., twin study. At the Clinical Pharmacology-Toxicology Center of the University of Kansas Medical Center a survey is underway to ascertain all twins in Kansas and, wherever possible, in adjacent states as well. Once a suitable number has been collected and zygosity determined, volunteers will be sought to undergo experimental trials with selected drugs. Greater concordance (less variability) in monozygotic twins than dizygotic twins indicates the operation of genetic factors. Furthermore, if the correlation between dizygotic twins or between siblings is greater than the parent-child correlation, then it is likely that recessive genetic factors are involved. On the other hand, if parent-child correlation is equal to or greater than the sibling-sibling it may indicate the

* This term is used to describe the presence of two or more forms of a gene (alleles) in a population in such numbers that the least frequent could not be maintained by recurrent mutation alone. In other words, if an apparently deleterious gene is present in 1% of the population (homozygosity would then occur in $.01 \times .01$ or one in ten thousand people), significant selective pressure must have been exerted on that population to retain the gene.

presence of dominant genes. This method of study lends itself well to variables of drug metabolism influenced by multiple genetic factors.

Another way of studying the possibility of multifactorial inheritance is by evaluating people from different genetic backgrounds. For example, certain religious groups are genetically isolated because of their beliefs and for this reason have intermarried. This practice leads to the accumulation of recessive genes in a defined population. Comparison of either religious or geographically isolated people with a random population may reveal significant differences in drug metabolism and thereby delineate various genetic factors significant in the development of drug reactions. Studies are also being planned at the University hospital to evaluate this aspect of pharmacogenetics.

Of course, the Clinical Pharmacology-Toxicology Center continues to seek those patients who have isolated adverse drug reactions in the absence of any predisposing disease; e.g., prolonged hypoglycemia after tolbutamide or toxicity to normal doses of diphenylhydantoin. Family studies of such individuals will be pursued with an eye toward determining if only a single gene, rather than many genes, is defective. If monofactorial inheritance is established, this fact can be used to counsel other members of a family in regard to their probability of developing a toxic reaction to a drug or class of drugs. Moreover, as single gene defects are often amenable to biochemical study, it may be possible to pinpoint the exact genetic lesion.

Society is increasingly concerned with such gross problems as air and water pollution. Relatively little attention has been devoted to internal pollution of the type caused by the use of more potent drugs. Sir William Osler pointed out many years ago that one of the main features differentiating man from animals was his propensity to ingest drugs. In our society, good health has come to be considered a right, not a blessing. As pharmacologic agents are often necessary to insure this right, it is even more important to recognize the hazards as well as the benefits of drug administration. It would seem likely that pharmacogenetic research will occupy an increasingly larger part of the time of those concerned with the toxic effects of drugs. The Clinical Pharmacology-Toxicology Center at KUMC is very much concerned with this field of study, simply because it offers yet another means of better understanding drug-patient interaction.

References

1. Evans, D. A. P. and White, T. A.: Human acetylation polymorphism. *J. Lab. Clin. Med.* 63:394-403, 1964.
2. Clarke, C. A.; Evans, D. A. P.; Harris, R.; McConnell, R. B. and Woodrow, J. C.: Genetics in medicine: a review. II. Pharmacogenetics. *Quart. J. Med.* 37:183-219, 1968.
3. Simpson, N. E. and Kalow, W.: Pharmacology and biologic variation. *Ann. N. Y. Acad. Sci.* 134:864-872, 1966.
4. Takahara, S.: Progressive oral gangrene probably due to lack of catalase in the blood (acatalasemia). Report of nine cases. *Lancet* 2:1101-1104, 1952.
5. Aebi, H.; Jeunet, F.; Richterich, R.; Suter, H.; Butler, R.; Frei, J. and Marti, H. R.: Observations in two Swiss families with acatalasia. *Enzymol. Biol. Clin.* 2:1-22, 1962.
6. Kutt, H.; Wolk, M.; Scherman, R. and McDowell, F.: Insufficient parahydroxylation as a cause of diphenylhydantoin toxicity. *Neurology* 14:542-548, 1964.
7. Carson, P. E. and Frischer, H.: Glucose-6-phosphate dehydrogenase deficiency and related disorders of the pentose phosphate pathway. *Amer. J. Med.* 41:744-761, 1966.
8. Peters, J. H.: Genetic factors in relation to drugs. *Ann. Rev. Pharmacol.* 8:427-452, 1968.
9. Liddell, J. and Lehmann, H.: Defects of hemoglobin and methemoglobin reductase. *Ann. N. Y. Acad. Sci.* 123:207-211, 1965.
10. O'Reilly, R. A.; Aggeler, P. M.; Hoag, M. S.; Leong, L. S. and Kropatkin, M. L.: Hereditary transmission of exceptional resistance to coumarin anticoagulant drugs. *New Eng. J. Med.* 271:809-815, 1964.
11. Bird, E. D. and Schwalbe, F. C., Jr.: Prolonged hypoglycemia secondary to tolbutamide. *Ann. Int. Med.* 62:110-112, 1965.
12. Schulz, E. and Brinkmann, W.: Rezidivierendes hypoglykämisches Koma infolge Abbaustörung von Tolbutamid. *Deutsch. Med. Wschr.* 93:485-491, 1968.
13. Vesell, E. S. and Page, J. G.: Genetic control of drug levels in man: antipyrine. *Science* 161:72-73, 1968.
14. Barbeau, A.: Dopamine and basal ganglia disease. *Arch. Neurol.* 4:97-102, 1961.
7. Bergamini, F.; Frost, P. and Dalldorf, G.: Biologic activity of African lymphoma extracts. *Proc. Soc. Exp. Biol. & Med.* 127:1141-1147, 1968.
8. Evans, A. S.; Niederman, J. C. and McCollum, R. U.: Seroepidemic studies of infectious mononucleosis with EB virus. *New England J. Med.* 279:1121-1127, November 21, 1968.
9. Rawls, W. E.; Tompkins, W. A. F.; Figueroa, M. E. and Melnick, J. L.: Herpesvirus type 2: Association with carcinoma of the cervix. *Science* 161:1255-1256, September 20, 1968.

Viruses and Neoplasia

(Continued from page 141)

U. S. Savings Bonds and Freedom Shares account for approximately 23 per cent of the privately-held portion of the Government's debt. They are described by Treasury officials as the keystone of the national debt structure.



A Clendening Sampler

ROBERT P. HUDSON, M.D., *Kansas City, Kansas*

ONE YEAR AGO in these pages I wrote of Logan Clendening, the teacher.¹ Two reprint requests greeted that effort and encouraged me to add a chapter on his literary endeavors. I am easily encouraged. Clendening's literary output (not necessarily complete) included 38 scientific articles, three medical textbooks, 13 historical or philosophical articles, and 28 features in lay publications such as *Saturday Evening Post*, *Atlantic Monthly*, and *American Mercury*. In addition, there were seven books for public consumption, including *The Human Body*, which brought Clendening international acclaim, and *Source Book of Medical History*,² which I believe will be his most enduring work.

The sum of Clendening's quotable passages would fill a small book. (Not a bad idea, come to think of it.) My goal here cannot be completeness. Nor are there enough column inches at hand to strike a balance between Clendening's scientific, historical, and lay writing. The aim here then is to taste his literary flavor, to demonstrate that much of his writing deserves resurrection, and to let his own words say something of Clendening, the man.

Written words best reflect our reasoned convictions. The spoken word can misrepresent; it can pour out in passion that is beyond recall. As we all know to our sorrow, there may be no chance to edit the tongue's rough draft. But the literary craftsman can return at will, shaping and changing his words until the thought is just so. Not that man cannot write well with passion—many have and excellently. But the passion of the written word is considered passion.

Nor is this to suggest Clendening believed everything he wrote. But his puckish words, the tongue-in-check thoughts, can usually be identified.

And looking at what inspires a man to write puckishly can itself reveal his character.

Other traits can be divined from a man's writings—sensitivity, perfectionism, originality and imagination, sense of humor, prejudices, thinking logic, his sheer intellectual mass. A sufficiently productive writer creates a self-portrait of sorts. It may not be a perfect likeness, but his written words can detail certain features denied the most sensitive biographer.

There are specific reasons for reviewing Clendening's writings. For one, they remind academicians that scientific articles need not necessarily drip vapidly nor medical texts anesthetize. For physicians generally, Clendening provides a common sense skepticism toward medical faddism, which is more timely than ever in these days of tranquilizers by the carload and drug-of-the-month for everything from dysarthria to dyspareunia. It is noteworthy, perhaps, that Clendening's last journal article was "Resistance to Change as a Contribution to Medical Progress."

Finally, and above all, even when imparting information, Clendening was entertaining—*purely and simply entertaining*. And that remains, after all, a quality for which many persons bother to read in the first place.

How to describe the writings themselves? It is a wise brand of timidity, I believe, that leads me to shun this question and seek refuge in Willa Cather's conclusion, "The qualities of a second-rate writer can easily be defined, but a first-rate writer can only be experienced. It is just the thing in him which escapes analysis that makes him first-rate."³ Having supported this statement, I will step aside and let you sample a first-rate writer.

Most of Clendening's scientific publications were written during his thirties, appearing between 1913-26. The majority were straightforward clinical studies

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with an orientation to internal medicine. Harbingers of Clendening's caustic wit were present, though, even in these earlier scientific writings. In 1915, in a piece entitled *A Review of the Subject of Chronic Intestinal Stasis*, he harpooned famous British surgeon, Sir Arbuthnot Lane, who at the time advocated treating intestinal stasis by the admirably direct expedient of removing the colon. To begin, Clendening was mildly horrified by Sir Arbuthnot's pride in an operative mortality rate of 24 per cent, this for what amounted to little more than chronic constipation. After establishing the statistical inadequacy of Sir Arbuthnot's claims in general, Clendening slipped in for a broadside.

It is, however, when one reaches the recommendations for surgical treatment . . . that one finds the most bewildering confusion. If you find anything loose in the abdomen, make it tight; and if you find anything tight, make it loose; that seems to be the general rule. But the schools of tightness and looseness are by no means drawn up in opposing camps. Indeed, they are bound by no narrow allegiance. You will find one single author advising you to sew up the cecum on one page, and telling you how he divides ileocecal adhesions on another. "If you see a head, hit it," was the happy motto of the lads who used to go to Donnybrook fair. The modern membranac surgeon goes to his Donnybrook fair every day: "If you see anything inside the abdomen, do something. If it is tight make it loose, if it is loose make it tight, untie the organs, let them float, or else on Mondays, Wednesday and Fridays let us sew them all up to the abdominal parietes."

"A marked incapacity to perform any mental exertion is a common feature of [intestinal stasis]" writes Sir Arbuthnot. . . . Has he had his own colon removed, may we ask?⁴

Time justified Clendening's free-swinging irreverency, and it is hard to imagine how Sir Arbuthnot could have rebutted convincingly, even if his eminency had deigned to answer this obscure Kansas City physician's blast in an obscure midwestern medical journal.

A personal favorite of mine finds Clendening combining two abiding passions—travel and medical history. Here he recounts the vicissitudes of his search for the tomb of Edward Jenner.

At Berkeley [the weather] did threaten to clear and remembering the traditions of the excellent cuisine enjoyed by that convivial medical society of which Jenner was the moving spirit when it met at the Berkeley Arms, I ordered lunch and inquired the way to local mementoes of Jenner. The landlady looked blank and asked me to repeat the name. I did so, adding the information that he had introduced vaccination against smallpox. She said she thought he was dead. I replied that I feared so, too, but would like to see his grave, or statue, or house. She said she didn't hold with vac-

cination herself but there was a stable boy who specialized in such matters.

While I awaited the arrival of the learned stable boy, I asked for a guide book. A pamphlet on Berkeley was procured, most of the contents of which were devoted to a description of Berkeley Castle, the seat of the Earls of Berkeley, and the principal distinction of which is that it contains a dungeon where the first Prince of Wales starved to death. There was also a brief account of Jenner, referring to his grave in the chancel of the church. . . .

By wandering around I suddenly came face to face with the thatched cottage where Jenner took the lymph from the hand of Sarah Nelmes to inoculate James Phipps . . . no plaque or plate or notice indicates why this fragile structure is preserved or what happened there. By Sherlockian cunning, we found the tomb. It is marked simply "Edward Jenner" and his dates. I liked that, but nowhere else in Berkeley is his name seen; there is not a statue or a tablet or a stone to one of the greatest Englishmen who ever lived.⁵

Clendening's major texts were *Modern Methods of Treatment* and *Methods of Diagnosis*, the latter completed and polished by Dr. Edward Hashinger, and published in 1947 after Clendening's death. Both are models of lucidity, laced with humorous aphorisms, spiced with literary and historical allusions and original descriptions of disease. To read his bit of Anglo-Saxon doggerel describing epilepsy is to learn in a single, unforgettable couplet the complex sequence of events of grand mal.

"The aura, the cry, the fall and the fit,

The tonus, the clonus, the piss and the shit."⁴

Methods of Treatment deserves special mention. It was this book which captured the fancy of H. L. Mencken, and led the great iconoclast to suggest to publisher Alfred Knopf that Clendening was the man Knopf had been seeking to write a book for laymen about human physiology. The result, of course, was Clendening's *The Human Body*, a book that sold over a half million copies in his lifetime, made him a national figure, and is still seen *forty years later* in soft cover in bookstores across the land.

Clendening was meant to write for the public. For me, the conclusion is inescapable. Here he could combine all his strengths—expertise in medical science, knowledge of medical history, his wit, dramatic flair, gentle irreverence, and always, thank his Muse always, a full measure of the quality that renders his medical philosophy timely even today, an over-riding, unadulterated common sense.

The evidence? Here in *The Human Body* Clendening introduces the always delicate subject of human sexuality.

More and more frequently as time leaves the tracery of respectability on my features, as the excesses of my

youth tend to be forgotten and my figure grows magisterial, my friends are accustomed to send me their children at about the age of adolescence in order that I may explain to them what is called the secrets of life. I sit and look at these preternaturally solemn young persons, primed by their parents or guardians to expect some esoteric and recondite lore, and I wonder what I am going to say. They embarrass me dreadfully. Anything that I have to expound to them will seem so gross and mechanical beside that magical experience which one day will be theirs, when they learn that love is lovelier for its lust and when their bodies become the most exquisite instruments to carry out the subtlest ecstasies of the spirit. For love is a *mystery*. And a mystery is at least this—it is an experience which happens to everyone, and yet to no two is it the same. So there is no way to tell them of a mystery. When their hour strikes, they will neither need nor heed any magisterial advice.

And so, quite frankly, I simply dodge the main issue. After all, that has been the wisdom of the ages—to dodge it, to allow everyone to find out about it for himself. If it were not so, why would not the parents themselves tell the secret? When I attempt to elaborate some of my reticences, the parents protest that unless the children learn it from me, they will learn it in the gutter. My reply to that is: "The gutter is a very good school." I am myself a matriculate from the gutter. I am inclined to believe that the pedagogy practiced on me in the gutter was superior to any to which I was ever subsequently exposed. They teach this particular subject very well in the gutter—with conviction and an inescapable clarity of detail, and with just sufficient of that gorgeous air of secrecy to invest it with the dubiousness of a speculation. In the gutter, best of all, they teach it as a joke. Which is just what it is. I keep explaining this carefully to all the ladies who object to my mildly smutty stories. It is the master joke of the universe. It is so magnificent a joke that the very stars rock with the echo of laughter which it arouses. That is just why it has attracted all those masters of the art of words from the beginning of time—the great comedians, Aristophanes and Rabelais and Cervantes and Shakespeare and Sterne and James Branch Cabell. It is because it is a joke that it is holy. It is because it is a joke, not because it is holy, that it keeps us fascinated even after we have found it out.⁷

Or this from "Doubts About Birth Control" in his delightful little book *The Care and Feeding of Adults*.

Birth-controllers are usually of the ilk that make great sport of such people as the Rotarians. I am as acutely sensitive as anyone to the vulgarities of an average Rotarian luncheon. But for sheer nonsense, clownishness, and unrestrained fun I am inclined to believe that a "For Ladies Only" birth-control meeting addressed by Mrs. Sanger deserves the life subscription to the *Manchester Guardian* award of merit. Of course, I know of this only by hearsay, but I now confess that I sent two members of my detective force

to one of these performances (both disguised as women). I am happy to be able to furnish my public with the results of their verbatim and wholly convincing report.

In the first place, the majority of the audience was composed of ladies who had long since lost interest in Kotex® advertising. Why they should be so avid for information about birth-control can be explained only on the same ground as the famous spinster who kept confessing her ancient adultery—she just liked to talk about it. By actual count three women young enough to bear children, who were unmarried and prospective candidates for the holy estate, were identified. Several widows (childless) and a number of divorcees who had been overheard passionately to consign the entire male sex to unspeakable tortures, and to renounce any further commerce or intercourse, social, sexual, or conversational, with them, were sprinkled (or wedged) among the audience.

The proceedings were opened by Mrs. Haldeman-Julius of Girard, Kansas, who heaped no end of scorn on the State of Missouri for having only one birth-control clinic within its borders, while Kansas proudly claimed three. No credit was given to the major cities of the "Show Me" state for having general hospitals to care for their homeless and indigent sick. The impression was left that the population of the Ozarks, unrestrained in its development by scientific methods of contraception, was about to burst from its confining hills and pour its hordes down over the mountain passes to inundate the civilization of Kansas, reduce Topeka to a smoking ruin, and set up an effete and rugged culture in the academic groves of Lawrence. After an exhausting introduction Mrs. Sanger, in person, was presented to the heaving bosoms of the audience.

Over Mrs. Sanger's address the blush of modesty is sicklied o'er with the pale cast of censorship. One detail can be divulged. Mrs. Sanger drew upon the blackboard an object which she stated represented a "youtrous" and then, in modest deprecation of her artistic powers, she said: "It's a very ugly youtrous, isn't it?"

Immediately after the address the fair name of Missouri was rescued from infamy by three lady osteopaths and a lady dentist who professed themselves eager to open a birth-control clinic any place, any time, for anybody. To the soft strains of

"We are tramping out the vineyards

Where the grapes of wrath are stored,"

and squeals of "Hello Grace, what are *you* doing here?" my agents withdrew from the temple.⁸

In a *Saturday Evening Post* article, "It's The Little Things That Count," Clendenning sympathetically chides physicians for their inability to cope with patients' minor ailments, those bothersome but harmless complaints which ". . . like a chewed piece of gum . . . are of interest only to the owner."

"There is one kind of question that the medical man too often gets asked. And if you want to witness acute

discomfiture, try it on some distinguished surgeon you happen to meet in a social gathering. There he stands, that noble and shining figure, almost godlike in his assurance and ability. Stroll up to him and ask, "Doctor, what's good for a fever blister?"

You would think anybody, at least any doctor, could answer that. But he can't. He doesn't know any more about it than you do. He smiles and says, "It'll go away," and if the fever-blistered one retorts, "Yes, but it'll come back," he is completely routed; has no answer at all.

Admitted, of course, that this is a casual question. It comes under the head of "free" or "curbstone" advice. But in his office, in consultation, and if he were being paid for it, he wouldn't come off any better—and it really is sort of devastating to think that that man standing there could arrange to lull you into unconsciousness, make a large gaping hole in you, remove through that aperture any one of half dozen important internal structures, close you up and put you back to bed without doing you any real harm at all, and yet he doesn't know how to cure a fever blister.⁹

Nor did Clendening spare that maddening genre of patient known to all physicians, the one who enjoys and needs his affliction.

The dyspeptic leads a gay life. If it were not for the fact that absorption is part of digestion and that the dyspeptic's digestion is all wrong, I would say he leads an absorbing existence. One thing you can say without fear or favor—he enjoys himself. In the finest sense of that overworked term, it is himself he enjoys. Nothing delights him so much as himself—his own insides.

Other people may go to the play and watch the evil forces of the world struggle with the good and the true and the beautiful. He needs no theater. He carries his fun around with him. He can pit, any time, the vile forces of the world, as represented in a prune soufflé, against his favorite hero, Gastric Juice, and have a drama that stirs his higher nature to its depths.

No one is required to write detective stories for the dyspeptic—some narrative designed to excite and anesthetize the tired brain. All he needs is a soupçon of creamed lobster, and just leave him alone with his fun—it will keep him on the edge of his chair for hours longer than the most sanguinary detective reader can be interested. And the excitement of the thing! Gas coming up! And gas not coming up! Gas that won't move one way or the other. And those pains! Sometimes they can't be located at all. Oh, it's perfectly fascinating.¹⁰

The ethical implications of genetic manipulation are now much in the news. Not much has been said yet about how the public may react to the notion. Clendening dealt with this aspect of voluntary eugenics in the following particularly timely commentary.

Men are not going to embrace eugenics. They are going to embrace the first likely, trim-figured girl with limpid eyes and flashing teeth who comes along, in spite of the fact that her germ plasm is probably reek-

ing with hypertension, cancer, haemophilia, colour-blindness, hay fever, epilepsy, and amyotrophic lateral sclerosis.¹¹

(Social planners, take note.)

One of Clendening's happiest creations was his short tale of Sherlock Holmes in Heaven. Entitled "The Case of the Missing Patriarchs," the idea was not original with Clendening. Yet he polished it and had it published, and it came to be associated with his name. He deserves credit, at least, for its preservation.

Sherlock Holmes is dead. At the age of 80 he passed away quietly in his sleep. And at once ascended to Heaven.

The arrival of few recent immigrants to the celestial streets has caused so much excitement. Only Napoleon's appearance in Hell is said to have equalled the great detective's reception. In spite of the heavy fog which rolled in from the Jordan, Holmes was immediately bowled in a hansom to audience with the Divine Presence. After the customary exchange of amenities, Jehovah said:

"Mr. Holmes, we, too, have our problems. Adam and Eve are missing. Have been 's a matter of fact, for nearly two aeons. They used to be quite an attraction to visitors and we would like to commission you to discover them."

Holmes looked thoughtful for a moment.

"We fear that their appearance when last seen would furnish no clue," continued Jehovah. "A man is bound to change in two aeons."

Holmes held up his long, thin hand. "Good old Watson," he replied. "Surely they must differ from the rest of the race."

"Well," mused God, "It was given out that they were Jews. I don't want to hurt Professor Einstein's feelings, but 's a matter of fact they were polyglots. Their children resembled them very closely, however."

"A moment," interrupted Holmes. "With luck I—could you make a pretty general announcement that a contest between an immovable body and an irresistible force would be staged in that large field at the end of the street—Lord's, I presume it is?"

The announcement was made and soon the streets were filled with a slowly moving crowd. Holmes stood idly on the divine portico watching them.

Suddenly he darted into the crowd and seized a patriarch and his whimpering old mate; he brought them to the Divine Presence.

"It is," asserted Deity. "Adam, you have been giving us a great deal of anxiety. But, Mr. Holmes, tell me how you found them."

"Elementary, my dear God," said Sherlock Holmes. "They have no navels."¹²

On the morning of January 31, 1945, sometime during the dark, impersonal, early morning hours, Logan Clendening slew himself with a cigar knife. Over the years as I contemplated the whole of Clendening's life, explaining this final act in customary

glib terms because increasingly untenable. The more I studied his writings, talked to his friends, dissected and reassembled, the more convinced I became that Logan Clendening's last mortal deed was quite in keeping with the quintessence of his personal philosophy, which was common sense.

As evidence, let me return to his writings, to the conclusion of *The Human Body*, a chapter entitled "De Senectute and Death."

Some cells of a chicken embryo placed in a flask 22 years ago at the Rockefeller Institute are still alive, or were a year or so ago. There is no theoretical reason to suppose they will not live forever.

For a complex organism like the human body, however, there is no hope. From nature's viewpoint it is much better so; she is forever trying new experiments, new forms, working out her schemes with new individuals. However little we bore ourselves, in the course of time everything else is tired of us. Death itself is not unpleasant, I should imagine. I have seen a good many people die. To a few death comes as a friend, as a relief from pain, from intolerable loneliness or loss, or from disappointment. To even fewer it comes as a horror. To most it hardly comes at all, so gradual is its approach, so long have the senses been benumbed, so little do they realize what is taking place. As I think it over, death seems to me one of the *few* evidences in nature of the operation of a creative intelligence: of an intelligence exhibiting qualities which I recognize as mind stuff. To have blundered on to the form of energy called life showed a sort of malignant power. After having blundered on life, to have conceived of death was a real stroke of genius.

Between vigorous life and death stands old age. Montaigne said that to read Cicero's essay on old age made one long to grow old. ("*Il donne l'appetit de vieillir*".) However bumptious it may appear to differ with a classic, I cannot agree with him. Even the inducement Cicero holds out that when one is old, one can sit in the senate, leaves me frigid. No, there is nothing so horrible as old age. When the wrinkles begin to come, and vision blurs, and the breath comes short on attempting an incline! And even the cosmetician cannot cover the repetitious fund of anecdote.

So far as I am aware, medical science has no wisdom in these matters. You may be perfectly sure that if you live long enough, you will grow old, you will be unbeautiful and unattractive, and that surely death will come. When it comes, you may be certain you will disappear like all the rest and that you will not be missed, nearly as much as even in your least sanguine moments you have been inclined to suppose.¹³

Written 20 years before his death, surely this passage lends an aura of rationality to Clendening's final act. Eleven days before he died, he wrote an old friend, "I am like the old Frenchman who said, '*La vie est triste. J'ai lu tout les livres.*' I too have read all the books and written all I am ever going to." The psychology of suicide is always complex.

This is, in fact, the only aspect of the phenomenon upon which the experts agree. Yet there is no reason to ignore sound evidence for rational suicide simply because it appears too obvious, too easy.

There is one other short piece that must be mentioned. In 1933 Clendening presented a talk entitled "The Lure of Old Medical Books," in which he said, "And what is the end of it all? You collect, and save and pile them up and then all of a sudden your lenticulostriate artery dilates like a tire in the movies and you read no more. What is to become of them all? Sent to a museum? Donated to an institution? I think not. I received a catalogue the other day which answers the matter—a catalogue of the sale by auction of the library of Edward Dean Richmond. On a page at the front his executors have placed a clause from his will: 'It is my wish and I so direct my Executors to sell at public auction in New York City my collection of books so that other book lovers may enjoy these treasures which have brought such happiness to me. . . .'"¹⁴

Yet this was not Clendening's last word on the subject. Paraphrased in the legal jargon required of a last will and testament, he said, "I give, devise and bequeath all of my books dealing with the History of Medicine and Science . . . to the Kansas University Endowment Association. . . ."

The Kansas School of Medicine can be forever grateful for this example of Logan Clendening's human inconsistency. His bequest kept intact one of the finest collections of rare books in the United States. That original donation, plus continuing interest and support by the former Mrs. Clendening, make possible the study of the history and philosophy of medicine at the University of Kansas today.

References

1. Husdon, R. P.: Logan Clendening—The anatomy of a teacher. *J. of the Ks. Med. Soc.* 69:154-156 and 160, 1968.
2. Available as Dover paperback T621.
3. Quoted in *MD*, p. 243, December 1968.
4. Clendening, L.: A review of the subject of chronic intestinal stasis. *Interstate Med. J.*, Vol. 22, No. 12:9-10, 1915.
5. Clendening, L.: Medical Shrines. *Ann. of Int. Med.* 11:1629-1643, 1938.
6. Clendening, L. and Hashinger, E.: *Methods of Diagnosis*. St. Louis, C. V. Mosby Company, 1947, p. 591.
7. Clendening, L.: *The Human Body*. New York, A. A. Knopf, 1952, p. 320-321.
8. Clendening, L.: *The Care and Feeding of Adults*. New York, Garden City, 1928, pp. 280-282.
9. Clendening, L.: It's the little things that count. *Saturday Evening Post*, p. 27, March 7, 1936.
10. Clendening, L.: Dyspeptics never die. *Saturday Evening Post*, p. 17, September 26, 1936.
11. ———: *The Human Body*, p. 56.
12. Clendening, L.: The case of the missing patriarchs. *Sherlockiana*, Ysleta, Texas, Hill, 1944.
13. ———: *The Human Body*, p. 442-443.
14. Clendening, L.: *The Lure of Old Medical Books*. Read before the Academy of Medicine of Cleveland. December 15, 1933.

Historical Visit to—

Medical Rome

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ROME IS, BY COMMON CONSENT, the most interesting city in the world. No other city has such a spectacular collection of masterpieces of art and architecture dating from classical antiquity, from the Renaissance and from modern times. There are many of medical interest. The ancient Romans were not only great law-givers but also great architects and engineers. The famous Appian Way from Rome to Brindisi was built by Appius Claudius Cascus in 244 B.C. Although it has been resurfaced many times in the more than two thousand years of existence, it remains a silent but eloquent tribute to the engineering skill and craftsmanship of the ancient Romans. This same Appius in 312 B.C. built the first aqueduct into Rome, bringing pure fresh water from the mountains. Many aqueducts were subsequently built, the ruins of which dot the landscape around Rome. In 103 A.D. there were nine aqueducts bringing water into Rome. According to Ashby, this system was capable of delivering no less than 222,000,000 gallons of water daily or 222 gallons per head. According to Rosen, the average per capita consumption of American cities varies from 45 to 357 gallons per head.

Every large city in the Roman Empire, presently had its aqueducts. Two hundred such aqueducts have been described, from Spain to Syria, from the Rhine to North Africa.

On the left bank of the Tiber, within view of the majestic dome of St. Peters, directly below the Temple of Vesta, lies the Cloaca Maxima, or greatest sewer, which has been emptying into the Tiber since it was constructed by Tarquinius Priscus, the Etruscan King of Rome in the sixth century B.C. The Cloaca Maxima is the most famous sewer of history and the prototype of the millions of sewers that have been built since the days of Tarquinius Priscus (*Figure 1*). These two bastions of public health (aqueducts to supply pure water, and sewers to carry off refuse), these two great discoveries in sanitation, were actually discoveries of the Etruscans. The Romans improved their construction and made them known throughout the civilized world.

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Just a short distance, literally a stone's throw from the Cloaca Maxima, lies the Isola Tiberinae (*Figures 2 and 3*), the Island of the Tiber, which stands in the center of the Tiber. "It still looks like a ship as it did in Roman days. It is crowded with buildings and might be a mediaeval castle sailing down the river" (Morton).

In the years 295 and 293 B.C. there was a very severe epidemic of the plague in Rome. According to the Roman poet, Ovid, "The citizens became wearied of so many funerals and saw that their efforts to cure themselves failed and that physic was of no avail, they appealed to Heaven and went to Delphi to consult the oracle of Apollo. By the mouth of the Pythia Apollo answered thus

"Oh Romans, the help ye seek must be sought elsewhere. It is not Apollo ye need to temper all your misery, but turn ye to his son Asklepios."

With this advice from Apollo the deputation went to Epidaurus, where the god in the form of a serpent, joined the party of Romans on their vessel and sailed for Rome.

As the ship proceeded up the Tiber, the sacred serpent dived overboard and swam to the Isola Tiberinae (*Figure 4*). Taking this as an omen, the Romans built an Asklepiion or temple of healing on the island and the Greek god of healing, Askepios,



Figure 1. Cloaca Maxima. Photo by Author, 1965



Figure 2. Isola Tiberinae. Photo by Author, 1965



Figure 3. Isola Tiberinae. Etching by Giovanni Battista Piranesi (1707-1778)

became Aesculapius. The foundation of the temple was shaped like a boat and on the prow, stood in marble the serpent and staff of Asklepios. The Asklepiion served Rome faithfully for centuries. We are told that Asklepios was one of the most difficult of all the pagan gods for the early Christians to dislodge. Too many Romans had found health and happiness in his temples. But eventually he was dethroned and the Asklepiion became a Christian hospital. This hospital today conducted by the Fate Bene Fratteli (Do Good Brothers) is an excellent modern institution, which shows with pride an antiquarian treasure, the serpent and staff of Asklepios which was placed on the ship's prow in 295 B.C. (Figure 5).

One of the bizarre sights of Rome is the Capuchine Cemetery on the Via Vittoria Veneto, just before it curves around to pass the Palazzo Morgherita, now the American Embassy. The monks of this order, after death, were buried in the undercroft of the church in holy earth brought from Jerusalem. After a time, the skeleton was removed, disarticulated and the skull and bones placed on the walls in various designs. Some of the designs are quite artistic. Mark Twain saw the cemetery in 1867 and described it in

his *Innocents Abroad*, a volume of travel letters which made him almost at once, the most widely read American author. Mark writes:

"Here was a spectacle for sensitive nerves. Evidently the old masters had been at work on this place. There were six divisions in the apartment and each division was ornamented with a style of decoration peculiar to itself—and these decorations were every instance formed

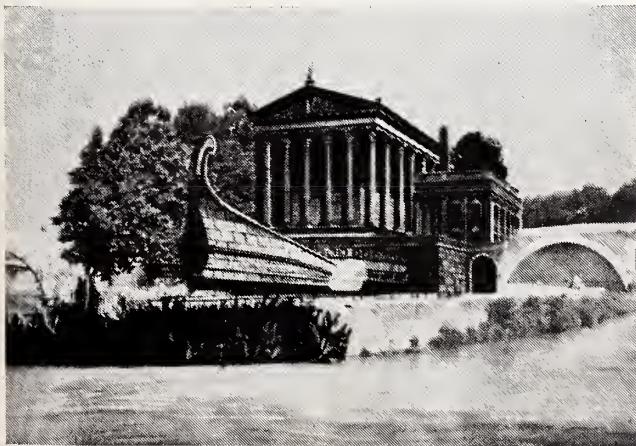


Figure 4. Asklepiion from "The Monuments of Rome Vision Publications"



Figure 5. Staff and Serpent of Asklepios. Photo by Author, 1965

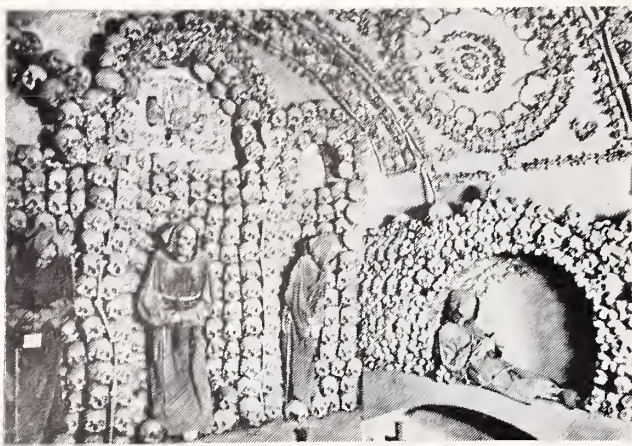


Figure 6. Capucine Cemetery

of human bones! There were shapely arches built wholly of thigh bones; there were startling pyramids built wholly of grinning skulls; there were quaint architectural designs of various kinds built of shin bones and bones of the arm; on the wall were elaborate frescoes, whose curving vines were made of knotted human vertebrae, whose delicate tendrils were made of sinews and tendons, whose flowers were formed of knee-caps and toe nails."

Who could improve on this description by Mark Twain? (Figure 6) Mark recounts his conversation with the Monk acting as guide.

"Who were these people?"

"We upstairs—Monks of the Capuchin order—my brethren."

"How many departed monks were required to upholster these six parlors?"

"These are the bones of four thousand."

"It took a long time to get enough?"

"Many many centuries."

The latest guide book on Rome states "that the cemetery consists of several rooms decorated with the skulls and skeletons of the 4,000 monks of this monastery, who died from the beginning of the 17th century down to 1870. From that year forward burial inside the City was prohibited and discontinued also in the cemetery."

No physician visiting Rome should fail to study Trajan's Column in detail (Figure 7). This column depicts the Emperor Trajan's War against the Dacians. As one studies the figures winding upwards he sees a group of army surgeons in the midst of the combat treating wounded Roman legionnaires. This very spirited sculpture shows the surgeons in the midst of battle dressing the wounds of the soldiers of their legion.

References

1. Ashby, T.: *The Aqueducts of Ancient Rome*. Oxford, Clarendon University Press, 1935.



Figure 7. Trajan's Column Army Surgeons

2. Merkel, R. and Ehwald, R.: *Opera. Ovid Metamorphoses*, XV:622-744. Leipzig, Tuebner, 1928.

3. Rosen, George: *A History of Public Health*. New York, M.D. Publications, 1958.

4. Schouten, I.: *The Rod and Serpent of Asclepius*. Amsterdam, London, New York, Elsevier Co., 1967.

5. Morton, H. V.: *A Traveller in Rome*. London, Methuen & Co., Ltd., 1957.

6. Twain, Mark: *Innocents Abroad*. Hartford, Amer. Publ. Co., 1896.

7. Paglia, J.: *What to See in Rome and Environs Rome*. Paglia, N. D.

Inborn Errors of Metabolism

(Continued from page 145)

sufficient quantity to yield well-saturated spots about the size of a one-cent piece. *The blood spots should be saturated through to the opposite side of the filter paper.* The areas soaked with urine should be outlined with a pencil to allow their location after drying. The filter paper should then be allowed to dry overnight and mailed to:

Harry H. White, M.D.
Department of Medicine
University of Kansas Medical Center
Kansas City, Kansas 66103

From these specimens it will be possible to perform paper chromatography for plasma amino acids, urine amino acids and urine sugars. This technique will detect most of the inborn errors of protein or carbohydrate metabolism and will indicate those cases deserving further (quantitative) study.

Cerebrospinal fluid, if available, may be spotted and processed in a similar manner.

Cancer Page

Patient History:

A 69-year-old retired broker was referred for consideration of cholecystectomy. He had poorly defined right abdominal distress and x-rays of the gall-bladder showed some calcification. The patient had been treated for anemia for one year. Hemoglobin at the time of referral was 9.3 grams. A barium enema showed a large carcinoma of the cecum.

Surgical excision of the lesion was accomplished and the patient remains well more than two years later.

Comment:

1. Carcinoma of the right colon is a common cause of anemia in the middle and old age group.
2. When anemia is discovered in a patient in middle or old age, a diligent search for a cause must be instigated.

—The Committee for Control of Cancer

The President's Message

DEAR DOCTOR:

The yearly issue of the JOURNAL devoted to contributions from the University of Kansas Medical Center is one of our most erudite publications.

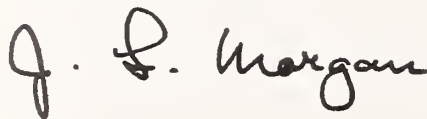
Almost a third of the Oath of Hippocrates pertains to the respect with which physicians shall view their teachers. This esteem exists today and all of us have a treasured place in our memories for the six or eight inspirational teachers who shaped our medical philosophy.

Many practicing physicians have a desire to teach. Fortunately, most of us in practice are doing what we are best fitted for as we care for patients on the local level and those most fitted for teaching by their talents and dedication are in the academic field. Some of us conceive of teaching in a Walter Mitty fashion, picturing dramatic grand rounds with a small select group of brilliant and admiring residents, yet one of my academic friends told me that teaching really consists of constantly gearing up enthusiasm to face an endless sea of ever-changing sophomore faces.

Members of the Kansas Medical Society throughout the state admire the success of our School of Medicine in superbly training the young physicians who join our ranks yearly and we are grateful for the finest postgraduate refresher courses in the United States which keep us intellectually stimulated. With this background of respect, those of us in private practice do have spirited debates with our friends at the Medical School about their policies. As I have met with the presidents of other state medical societies, I have been proud to tell my fellow executives of the close working relationship and the friendly give-and-take between the members of the Kansas Medical Society and the staff of the Kansas University Medical School.

On behalf of the practicing physicians throughout the state, I extend warm greetings to our colleagues and fellow Society members at the Medical School.

Sincerely,

A handwritten signature in dark ink, reading "J. S. Morgan". The signature is written in a cursive, slightly stylized font. The "J" is large and loops around the "S". The "Morgan" is written in a more fluid, connected script.

President





A review of the operation of Medicaid is in order. For the first 18 months of operation, Medicaid paid providers of health care for recipients qualifying under Title XIX, a total of \$40,823,950. A breakdown of the payments is as follows:

Hospitals	\$11,636,034
Physicians (MD's and DO's)	8,191,964
Drugs	6,499,252
Nursing homes	10,926,268
Other (dental, state institutions, etc.)	3,570,430
	<hr/>
	\$40,823,950

However, there are certain trends in the application of Title XIX that are of much concern to the Department of Welfare. The costs of this program for the first six months of fiscal year 1968-69 have increased more rapidly than was anticipated in the projected increases as reflected in the proposed budget for this year, and more particularly so when compared to the authorized budget, as passed by the legislature. In fact, if the present rate of costs continues for the remainder of this fiscal year, it will exceed the budget request of the Division of Medical Services by about \$2,000,000, and the authorized budget by some \$3,000,000. However, the governor, in his message to the legislature, includes a recommendation for a supplemental appropriation of \$2,336,283 for the present fiscal year. If these funds are appropriated by the legislature, the Department of Welfare is hopeful that there will be no need for proration. This will be necessary, however, if no additional funds are forthcoming.

In consideration of the budget for 1969-70, the governor goes on to state that a three per cent increase in the cost of drugs and ten per cent increase in hospital costs are to be anticipated, but no provision has been made for an increase in professional fees. He states, "The budget is projected on the pres-

Title XIX in Kansas

ent customary and usual fees. The alarming increase in the costs of medical services to our needy citizens must be brought under control. The dispensers of these services must exercise some self-discipline."

In an attempt to analyze the reasons behind the increased costs, the following statistical facts are interesting. There is an over-all increase of 14 per cent in the number of active cases of recipients, 6.3 per cent or 3,971 cases falling within the traditional categories of welfare, and 70 per cent or 5,986 cases in the medical assistance only category. This has produced an increase in the total cost of \$1,312,986 over which the medical profession has had no control. The average increase of cost per individual was, for physicians, 1.8 per cent; for hospitals, 17 per cent; and for dentists, 17 per cent. The dental program is new and, being a catch-up program, this percentage does not truly reflect the individual costs, which were not perceptibly greater. If one projects the six months operating costs, providing they remain the same to 12 months, the deficit for fiscal 1968-69 would amount to something over \$2,600,000. For the future, one can project a disproportionate increase in the medical only category, as there are many families in Kansas whose incomes and resources fall below the statutory level who have never applied for benefits under Title XIX.

Above and beyond these factors, the medical profession (as well as other providers), individually and collectively, has a responsibility to the state of Kansas to render medical care to Title XIX recipients on a reasonable charge and utilization basis. Remember always, please—that Medicaid (Title XIX) in Kansas, as related to the federal law, predicates medical care on the basis of "medical necessity." The "frills" of medical care over and beyond the medical necessity are not the responsibility of the state. Since hospitalization is the highest cost service in this program, admission to the hospital should be on the

basis of medical necessity and not upon the patient's request, and dismissal should be on the earliest date that is compatible with good medical care. Since nursing home or other arrangements are necessary for many of these people, the anticipated date of dismissal should be made known to the families or social workers, giving sufficient time for them to make arrangements for the patient on the day of dismissal.

There are four primary purposes for this report:

1. To give you a factual report of the payments made under Title XIX to providers of medical care in Kansas.

2. To reveal to you certain trends in medical care which are of concern to the Department of Welfare.

3. To acquaint you with some of the basic facts so that you are in a position to discuss these problems intelligently with your legislators.

4. Under the statutory concept of "medical necessity," to urge you to use restraint in hospitalizing patients, ordering unnecessary laboratory or x-ray examinations, and unnecessary visits and examinations.

The ultimate success of the Title XIX (Medicaid) program in Kansas will depend upon the persistent and cooperative efforts of the providers of care, the Department of Welfare, and the Kansas Legislature. To date, it would appear that the efforts of all of us have been fruitful as reflected in a portion of the summary of the report of the review and evaluating team of Health, Education and Welfare, which states, "There were a few problem areas, but with necessary modifications, this program has the potential of being a model for other states to follow."

LUCIEN R. PYLE, M.D.
*Medical Co-ordinator of Title XIX
 State Board of Social Welfare*

CHANGE OF ADDRESS

The executive office of the Kansas Medical Society has moved to its new location:

**1300 Topeka Avenue
 Topeka, Kansas 66612**

Nominating Committee

The Nominating Committee met on Thursday, February 20, 1969, and submits to the House of Delegates the following list of nominations for the elective offices of the Society. Wherever more than one nomination appears these are presented in alphabetical order. A very brief biography accompanies each name.

President-Elect

Francis T. Collins, M.D., Topeka. Born in 1914. Graduated from the University of Kansas School of Medicine in 1943. This year served as First Vice President.

First Vice President

William J. Reals, M.D., Wichita. Born in 1920. Graduated from Creighton University School of Medicine in 1945. This year served as Second Vice President and AMA Alternate Delegate.

Second Vice President

Kenneth L. Graham, M.D., Leavenworth. Born in 1921. Graduated from Ohio State University School of Medicine in 1945. Now serving as chairman of the Commission for Sociology and Economics.

James E. Hill, M.D., Arkansas City. Born in 1909. Graduated from the University of Kansas School of Medicine in 1934. Member of the Board of Healing Arts. Served on various committees of the Society.

James J. Marchbanks, M.D., Oakley. Born in 1923. Graduated from the University of Kansas School of Medicine in 1946. Currently serving as councilor from District 16.

E. Burke Scagnelli, M.D., Dodge City. Born in 1918. Graduated from Loyola University School of Medicine in 1943. Past president of Kansas Blue Shield, and has served on Society committees.

Constitutional Secretary

Emerson D. Yoder, M.D., Denton. Born in 1914. Graduated from the University of Kansas School of Medicine in 1949. Is now serving as Constitutional Secretary.

Treasurer

Chester M. Lessenden, Jr., M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1943. Is now serving as Treasurer.

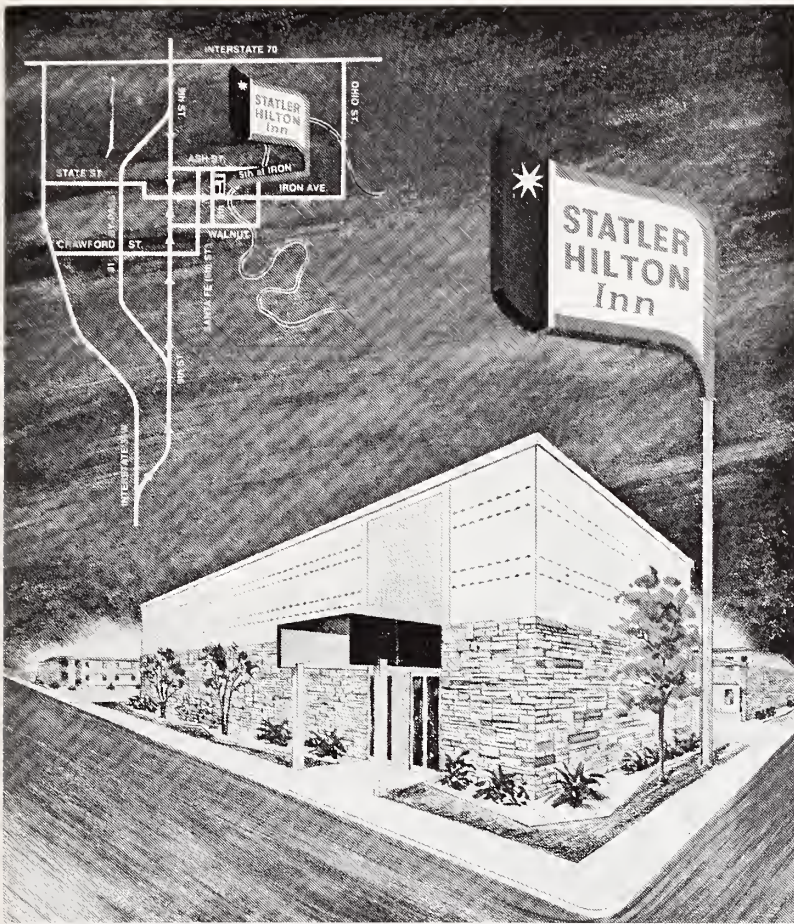
AMA Delegate

John C. Mitchell, M.D., Salina. Born in 1913. Graduated from the University of Kansas School of Medicine in 1938. Past president of the Kansas Medical Society and presently serving as AMA Delegate.

AMA Alternate Delegate

John N. Blank, M.D., Hutchinson. Born in 1907. Graduated from the University of Kansas School of Medicine in 1938. Member of the Kansas State Board of Health and chairman of the Insurance Committee of the Society.

Thomas P. Butcher, M.D., Emporia. Born in 1905. Graduated from Rush Medical College in 1934. Past president of the Kansas Medical Society and has served on a number of Society committees.



KMS

Annual Session

May 4-7, 1969

Statler-Hilton Inn
5th & Iron Streets
Salina

SUNDAY, MAY 4

3:00 p.m. *House of Delegates*
 Evening *Salina Country Club facilities available*

MONDAY, MAY 5

8:00 a.m. *Reference Committees*
 10:30 a.m. *Sports Day*
 Evening *"Highlights Review"—Salina Country Club*

TUESDAY, MAY 6

9:00 a.m. *Scientific Meetings*
 2:00 p.m. *Scientific Meetings*
 Evening *President's Banquet—Salina Country Club*

WEDNESDAY, MAY 7

9:00 a.m. *House of Delegates*
Council Meeting

Down Memory Lane—

—With “The PRN Ten”



For Your Entertainment

at the

PRESIDENT'S BANQUET

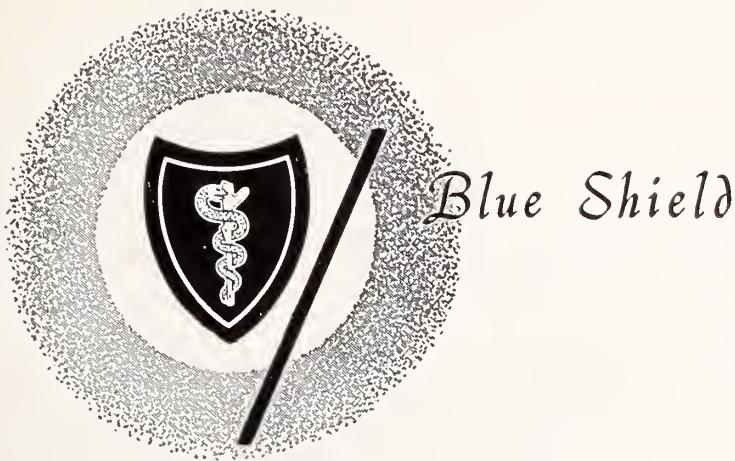
—7:00 p.m., Tuesday, May 6, 1969.

—at the beautiful Salina Country Club.

—“The PRN Ten”—a fun-loving group whose music will bring back memories of the early 30's and Red Blackburn's band at KU.

—Follows the Alumni Social Hour to which all members of the Society are invited.

DON'T YOU DARE MISS IT!!



The new addition to the present Blue Cross and Blue Shield headquarters at 1133 South Topeka Avenue, Topeka, is nearing completion with employees moving into new areas as they are finished.

The new addition complements the original headquarters in architectural design and ties in structurally with the original building which was erected in 1954 when Blue Cross and Blue Shield employees numbered 150 and there was no rental property available in Topeka to house that many employees and equipment.

Original cost estimates for the new building were approximately \$1,300,000 for a basement, sub-basement, and two above-ground floors, furnishing 36,000 square feet of working space. However, increased claims volume, additional personnel and equipment necessitated a decision to add a third above-ground floor in January 1968. The third floor will provide another 11,900 square feet of working space at an additional cost of \$260,000.

It is estimated that to own and maintain the new building will result in a savings of \$180,000 a year over the cost of renting the same amount of space, assuming this amount of space would always be available. The cost to own and maintain the additional space is approximately \$2.26 per square foot per year as compared to a \$4.25 to \$4.50 per square foot cost

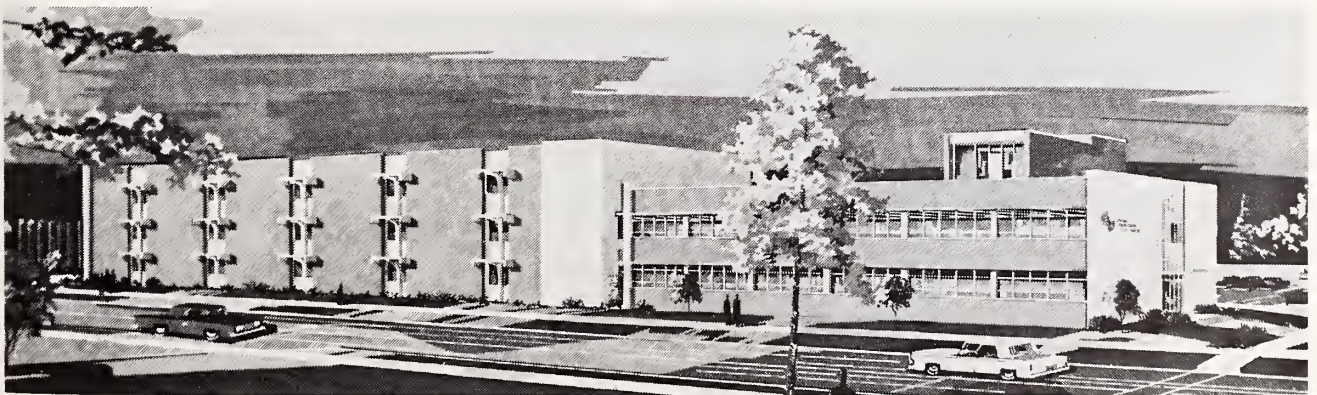
per year on a rental basis.

The new addition was originally planned in 1967 after Blue Cross became the intermediary for Medicare Part A and Blue Shield became the carrier for Medicare Part B and after the Prevailing Charge Program was implemented. Growth in membership since 1966 has been extensive. Total claims—hospitals, physicians, and others—volume has increased from \$40,000,000 in 1965 to \$131,500,000 in 1968. Enrollment reached an all time high of 690,000 subscribers in 1968. Total personnel has grown accordingly from 268 in 1966 to 681 in 1969.

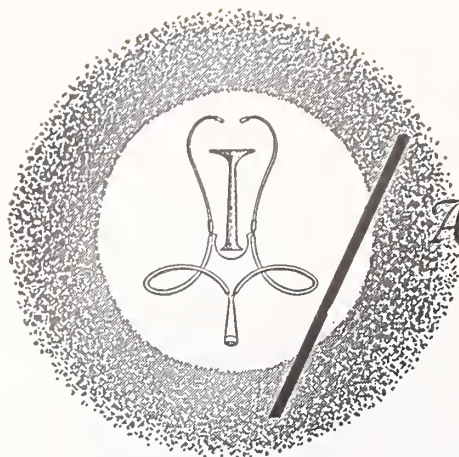
As early as 1967, 160 employees were moved to a downtown Topeka location. Since that time personnel has been located in as many as nine outlying buildings. The total effect of the "spread out" operation has not produced the efficiency that an organization which anticipates a claim volume of \$147,000,000 for 1969 desires.

It is anticipated that by May, 1969, the new addition will be completed.

FINANCIAL NOTE: As an example of growth in payments in the Prevailing Charge Plan, payments to physicians in 1966 totaled \$13,700,000. Through the Prevailing Charge Program's increased benefits and payment of doctors' usual and reasonable charges, Kansas physicians received \$21,600,000 in 1968.



An architect's drawing of the Blue Cross-Blue Shield building in Topeka shows the addition which is nearing completion. With some remodeling the original building will be completed by mid-1969.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

MARCH

- Mar. 21-22 *21st Annual Midwest Cancer Conference, Broadview Hotel, Wichita.*

APRIL

- Apr. 13-18 Health Services Research Seminar, Department of Medical Care and Hospitals, Johns Hopkins University, Baltimore. Sponsored by the Division of Regional Medical Programs, National Center for Health Services Research and Development, and the Association of American Medical Colleges. Write: John W. Williamson, M.D., Seminar Coordinator, Dept. of Medical Care and Hospitals, The Johns Hopkins University, 550 N. Broadway, Room 207, Baltimore, Maryland 21205.
- Apr. 21-24 American Industrial Health Conference, for physicians and nurses, Shamrock Hilton, Houston, Texas. For more information contact the American Industrial Health Conference, 55 E. Washington St., Chicago 60602.
- Apr. 21-23 American Academy of Pediatrics, annual spring session, Sheraton-Boston Hotel, Boston, Massachusetts. Write American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204.

MAY

- May 4-7 *Kansas Medical Society, 110th Annual Session, Statler-Hilton Inn, Salina.*
- May 8 20th Annual Dr. F. G. Thompson, Sr. Lectureship, Thompson, Brumm & Knepper Clinic, 902 Edmond Street, St. Joseph, Missouri. Dr. R. H. Young, dean of Northwestern University Medical School and Chairman of the National Board of Medical Examiners will

speak on the topic, "Examination and Licensure to Practice Medicine." The lecture will begin at 8:15 p.m.

- May 14-16 National Society for the Prevention of Blindness, annual conference, Pfister Hotel, Milwaukee, Wisconsin.

POSTGRADUATE EDUCATION

University of Kansas Medical Center:

- Apr. 14-16 *Ophthalmology (Pediatric Ophthalmic Surgery)*
- Apr. 18 *Infectious Diseases*
- Apr. 21-23 *Anesthesiology*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

- April 9-11 *Management of Acute and Chronic Respiratory Failure*
- Apr. 14-17 *Obstetrics and Gynecology (Colorado Springs)*
- Apr. 24-26 *Clinical Dermatology (limited)*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

- Mar. 27-28 *Advanced Medical Microbiology for Medical Technologists*
- Apr. 9-11 *Management of Acute and Chronic Respiratory Failure*

For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

(Continued on page 170)



Personalities—IN KANSAS MEDICINE

Glen Hutchison, Hays, entered a residency in anesthesiology and pulmonary diseases at Denver in February. After completion of the residency, Dr. Hutchison plans to return to Hays where he will limit his practice to the two specialties.

Karl A. Menninger, Topeka, was among the ten physicians and medical educators in the United States and Canada named to receive the 1969 Modern Medicine Distinguished Achievement Award. The award was made in January.

Sabetha physician, Cecil C. Hunnicutt, became a Fellow in the International College of Surgeons in January.

Hugh Dierker, director of the Kansas Health Department, resigned in March to become medical director of areawide planning in San Antonio, Texas.

A symposium on the mentally handicapped child was conducted by Herbert Miller of the University of Kansas Medical Center in January. The symposium, held in Great Bend, was sponsored by the Barton County Medical Society, the Kansas Center for Research of Human Development and the Kansas Association for Retarded Children.

Howard V. Williams, Topeka, director of community mental health services for the Kansas Department of Health, was one of the featured speakers at a meeting of the Pratt County Association for Mental Health. The meeting was held in Pratt in January.

Kermit E. Krantz and Thomas M. Holder, both staff members at KUMC, participated in the sectional

meeting of the American College of Surgeons at Omaha in February.

John F. Barr, Ottawa, retired from active practice the first of January. He had been a general practitioner in Ottawa for 39 years.

Evan R. Williams, Dodge City, has been elected chairman of the Dodge City Area Health Planning Council.

Hutchinson radiologist, Leland Glaser, announced his retirement the first of January.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Hubert H. Bell, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Richard E. Easton, M.D.
3929 Eaton
Kansas City, Kansas 66103

Frederick Holmes, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Aryeh Hurwitz, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Martin Klenda, Jr., M.D.
110½ S. Mill Street
Beloit, Kansas 67420

Robert R. Laing, M.D.
155 South 18th Street
Kansas City, Kansas 66102

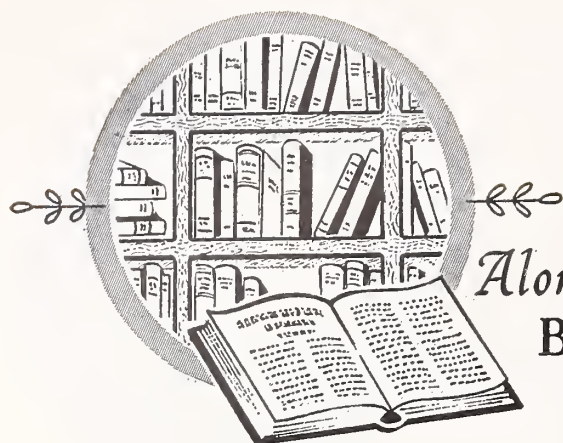
Donald D. Moeller, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Richard Morrison, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

L. W. Price, Jr., M.D.
944 Kentucky
Lawrence, Kansas 66044

Robert E. Riederer, M.D.
540 East Santa Fe
Olathe, Kansas 66061

Warren T. Culver, M.D.
1203 Iowa
Lawrence, Kansas 66044



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Acheson, Ernest Donald. Record linkage in medicine; proceedings of the International Symposium. Baltimore, Williams and Wilkins, 1968.
- Adler, Sol. The health and education of the economically deprived child. St. Louis, W. H. Green, 1968.
- American Hospital Association. Cost-finding and rate-setting for hospitals. Chicago, 1968.
- American Hospital Association. Infection control in the hospital. Chicago, 1968.
- The American hospital system; papers presented at the dedication program of the Baptist Memorial Hospital, Memphis, Tennessee. Pensacola, Fla., Hospital Research & Development Institute, Inc., 1968.
- Baer, John Ethan. An inquiry into computers in hospitals. Ann Arbor, Mich., University Microfilms, Inc., 1968.
- Calliet, Rene. Low back pain syndrome. 2nd ed. Philadelphia, F. A. Davis, 1968.
- Cowdry, Edmund Vincent, ed. The care of the geriatric patient. 3d ed. St. Louis, Mosby, 1968.
- Geddes, Leslie Alexander. Principles of applied biomedical instrumentation. New York, Wiley, 1968.
- Gelfand, Michael. Philosophy and ethics of medicine; foreword by Sir Robert Aitken. Edinburgh, London, Livingstone, 1968.
- Harstein, Jack. Questions and answers on contact lens practice. St. Louis, Mosby, 1968.
- Health care of aged study; a study of the physical and mental health care needs of older people in Monroe County, New York. Rochester, N. Y., Health Care of the Aged Study, 1968.
- Jevons, Frederick Raphael. The biochemical approach to life. New York, Basic Books, 1968.
- Kirman, Brian Herbert. Science and psychiatry: problems of the scientific approach to mental disorders. London, Lawrence & Wishart, 1968.
- Klee, Axel. A clinical study of migraine with particular reference to the most severe cases. Copenhagen, Munksgaard, 1968.
- Lederer, Wolfgang. The fear of women. New York, Grune & Stratton, 1968.
- Lidz, Theodore. The person: his development throughout the life cycle. New York, Basic Books, 1968.
- Longmore, Donald. Spare-part surgery; the surgical practice of the future. Garden City, N. Y., Doubleday, 1968.
- Lyden, Fremont J. The training of good physicians; critical factors in career choices. Cambridge, Mass., Harvard University Press, 1968.
- Medicine, science, and culture; historical essays in honor of Owsei Temkin. Baltimore, Johns Hopkins Press, 1968.
- Mytinger, Robert E. Innovation in local health services; a study of the adoption of new programs by local health departments with particular reference to newer medical care activities. Washington, U. S. Government Printing Office, 1968.
- Norman, John C., ed. Organ perfusion and preservation. New York, Appleton-Century-Crofts, 1968.
- Osofsky, Howard J. The pregnant teen-ager; a medical, educational, and social analysis. Springfield, Ill., Thomas, 1968.
- Proger, Samuel, ed. The medicated society. New York, Macmillan, 1968.
- Roland, Maxwell. Management of the infertile couple. Springfield, Ill., Thomas, 1968.
- Science and the concept of race; Margaret Mead [et al.] editors. New York, Columbia University Press, 1968.
- Shapiro, David S. The mental health counselor in the community; training of physicians and ministers. Springfield, Ill., Thomas, 1968.
- Solzhenitsyn, Aleksandr I., The cancer ward. New York, Dial Press, 1968.
- Stern, Curt. Genetic mosaics and other essays. Cambridge, Mass., Harvard University Press, 1968.
- Tidy, Noël M. Massage and remedial exercises in

(Continued on page 170)



Book REVIEWS

HANDBOOK FOR PEDIATRIC MEDICAL EMERGENCIES (4th Edition), by Charles Varga. C. V. Mosby Company, St. Louis, 1968. 694 pages illustrated. \$19.75.

This book is really a rather comprehensive pediatric therapy handbook. With the exception of some of the more simple medical problems that are met in the everyday practice of medicine, this book has most of the answers. The organization is such that an appraisal of the table of contents would give you the chapters in which you would find general subject assistance. If you needed more specific information, the indexing is quite adequate.

By the very nature of the book, the practitioner would need to have a reasonably good diagnosis as there is no attempt made to give differential diagnoses, or much in the way of physiology which might help to understand the treatment regimens which are being given. It is assumed that the basic knowledge of differential diagnosis, physiology, and clinical findings are already known as this deals primarily with treatment; however this does not detract from the value of the book.

When all the details cannot be recalled immediately, the busy practicing pediatrician needs a readily available source of information for treatment. I would think this is such a good book that a copy of this fourth edition would be an asset to any general hospital emergency room or the floor where pediatric patients are treated. In addition, it would be an asset in the clinician's office where he would desire to have a comprehensive book of current pediatric therapy available.—*R.D.P.*

INSTRUCTIONS FOR PATIENTS, by H. Winter Griffith. W. B. Saunders Company, Philadelphia, 1968. 670 pages. \$25.00.

Dr. Griffith has compiled a much needed volume of instructions for patients which can be easily photocopied and distributed to patients. Also reprints of the specific orders can be obtained from the Tallahassee Reprint Service. The instructions cover a wide variety of illnesses and encompass all of these specialties. The general format is written clearly. A brief explanation of the disease process is presented as an introduction to each illness. Each of the information sheets should be helpful to patients and to the doctor who had previously had to become involved in a lengthy time-consuming explanation of the disease process to the patient. They will not, however, substitute as a short cut for explaining the illness and instructions to the patient. Several explanations of the disease process appear to be somewhat complicated and will need elucidation by the physician. Undoubtedly, many of the instructions represent some relatively special viewpoints of authors. The physician will probably find many instructions that he wishes to add or delete from the information sheet. Unfortunately, the sheets do not contain enough space for individualization by the physician. Many points of treatment will be of a controversial nature, and it will be necessary for the physician to utilize these information sheets as he deems necessary. Generally speaking, this instruction book will be a valuable asset to the practicing physician. It should also be well appreciated by our patients.—*R.D.N.*

Announcements*(Continued from page 166)*

New York University:

Apr. 14-15 *Cardiac Auscultation*Apr. 24-25 *Theory and Practice of Contact Lenses*

For further information write Office of the Recorder, Room 158MSB, New York University Postgraduate Medical School, 550 First Ave., New York, New York 10016.

Apr. 16-18 13th annual postgraduate course in *Trauma*, Chicago Committee on Trauma of the American College of Surgeons, John B. Murphy Auditorium, Chicago. Write James P. Ahstrom, Jr., M.D., American College of Surgeons, 55 E. Erie St., Chicago 60611.

Apr. 14-25 Postgraduate course in *Laryngology and Bronchoesophagology* presented by the Dept. of Otolaryngology, Illinois Eye and Ear Infirmary, and the College of Medicine of the University of Illinois. Write Department of Otolaryngology, College of Medicine, University of Illinois at the Medical Center, P.O. Box 6998, Chicago 60680.

May 8-10 Postgraduate course in *Pediatrics*, Department of Pediatrics, University of Cincinnati. Write George Benzing, III, M.D., Children's Hospital, Cincinnati, Ohio 45229.

Bookshelf*(Continued from page 168)*

medical and surgical conditions. 11th ed. Baltimore, Williams and Wilkins, 1968.

U. S. Food and Drug Administration. Advisory Committee on Obstetrics and Gynecology. Report on intrauterine contraceptive devices. Washington, U. S. Government Printing Office, 1968.

U. S. National Center for Health Statistics. State licensing of health occupations. Washington, U. S. Government Printing Office, 1968.

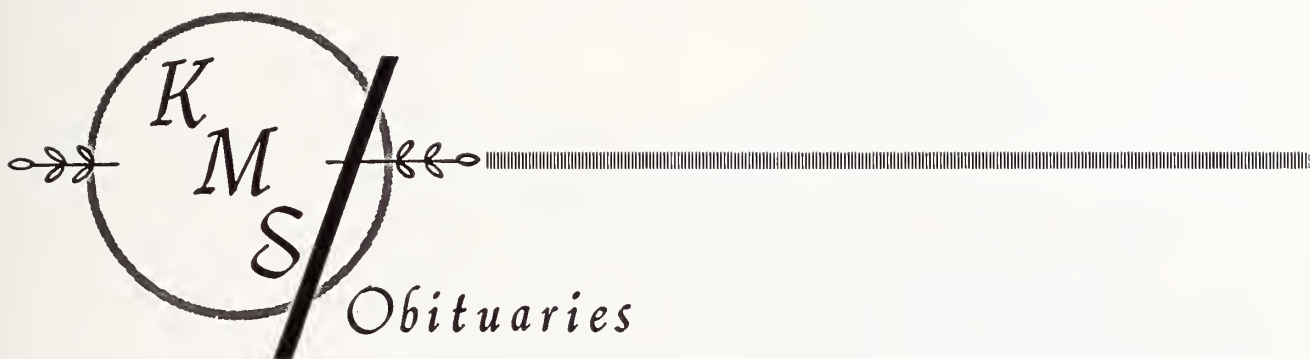
SK&F SERVICES CATALOG 69/70

The new edition of the Smith Kline & French Laboratories Services Catalog is now available to physicians without charge.

Included in the catalog are medical films, booklets, periodicals, Speakers Bureau, and the "Code 4" cardiopulmonary resuscitation training program.

New to this year's catalog is the film, "Shock: Recognition and Management," which describes the preliminary evaluation and treatment of shock. Also included are: *Medical Assistant*, a quarterly publication for the physician's office assistant, and Medical Information Service on SK&F Products. A special section highlights SK&F's newest services.

MARK YOUR CALENDAR**110th Annual Session***of the***KANSAS MEDICAL SOCIETY****May 4-7, 1969****Statler-Hilton Inn****Salina, Kansas**



MARTIN MEHRLE, M.D.

Dr. Martin Mehrle, Pittsburg, died on January 27, 1969, at the age of 85.

Born September 6, 1883, in Cape Girardeau, Missouri, he graduated from the Barnes College of Pharmacy in St. Louis. After a few years as a pharmacist in Arkansas, he entered medical school and graduated from the Barnes Medical College in 1908. He began his medical practice in Walnut in 1910 and moved to Pittsburg in 1920. He was a practicing physician in Crawford County for more than 60 years.

Dr. Mehrle was a member of the Methodist Church, Masonic and other fraternal organizations.

JOHN H. SCHRANT, M.D.

Dr. John H. Schrant, 92, Hutchinson, died on January 20, 1969, while visiting a son in Denver, Colorado.

Dr. Schrant was born July 2, 1876, in Columbus, Ohio. He received his Doctor of Medicine degree from the University Medical College of Kansas City in 1904. He began his medical practice in Dighton. After studying in Europe, he returned to Hutchinson in 1912 and established his practice as an eye, ear, nose and throat specialist. He retired in 1956.

Dr. Schrant is survived by a son and a daughter.

The Kansas Medical Society—1968-1969

OFFICERS

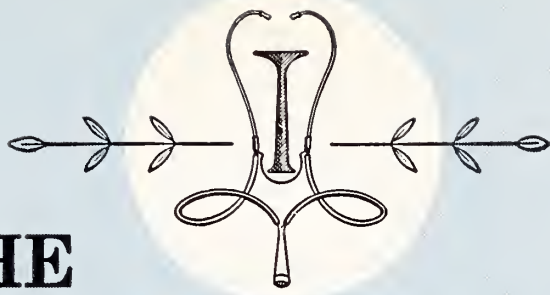
President	John L. Morgan, Emporia
Immediate Past President	George F. Gsell, Wichita
President-Elect	Leland Speer, Kansas City
First Vice-President	Francis T. Collins, Topeka
Second Vice-President	William J. Reals, Wichita
Secretary	Emerson D. Yoder, Denton
Treasurer	Chester M. Lessenden, Jr., Topeka
A.M.A. Delegate	John C. Mitchell, Salina
A.M.A. Delegate	Lucien R. Pyle, Topeka
A.M.A. Alternate	William J. Reals, Wichita
A.M.A. Alternate	J. Warren Manley, Kansas City
Chairman of Editorial Board ..	Orville R. Clark, Topeka

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District 13	Eugene T. Siler, Hays
District 14	Marvin O. Steffen, Great Bend
District 15	Richard H. Hill, Meade
District 16	J. J. Marchbanks, Oakley
District 17	J. A. Barnard, Garden City
District 18	R. W. Hughes, Lawrence

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<i>Society</i>	<i>President</i>	<i>Secretary</i>
Allen	George F. DeTar, Iola	Eugene Myers, Iola
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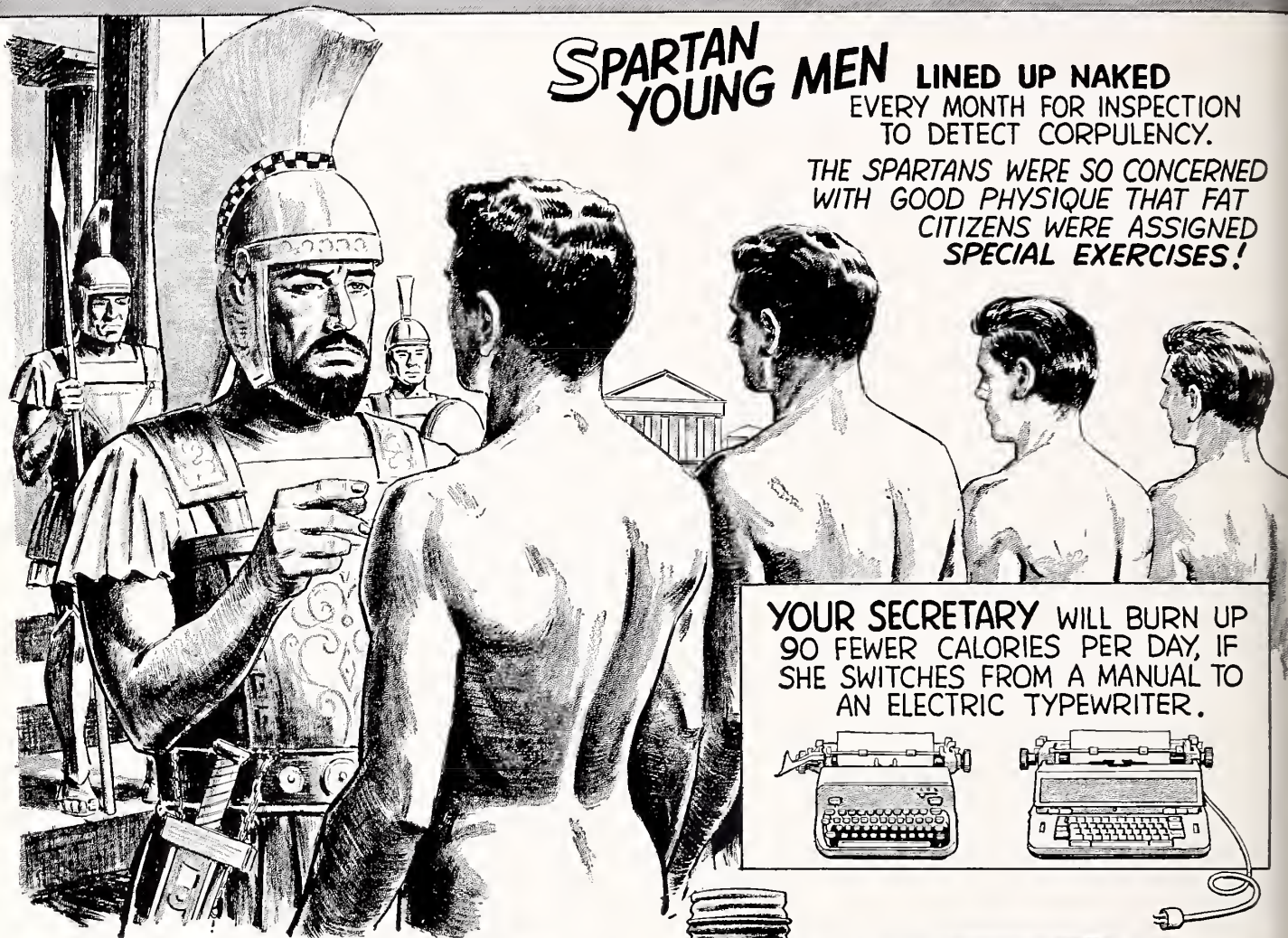
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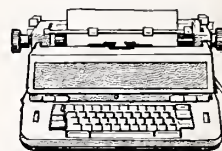
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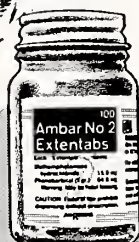
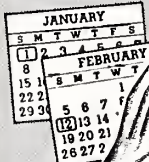


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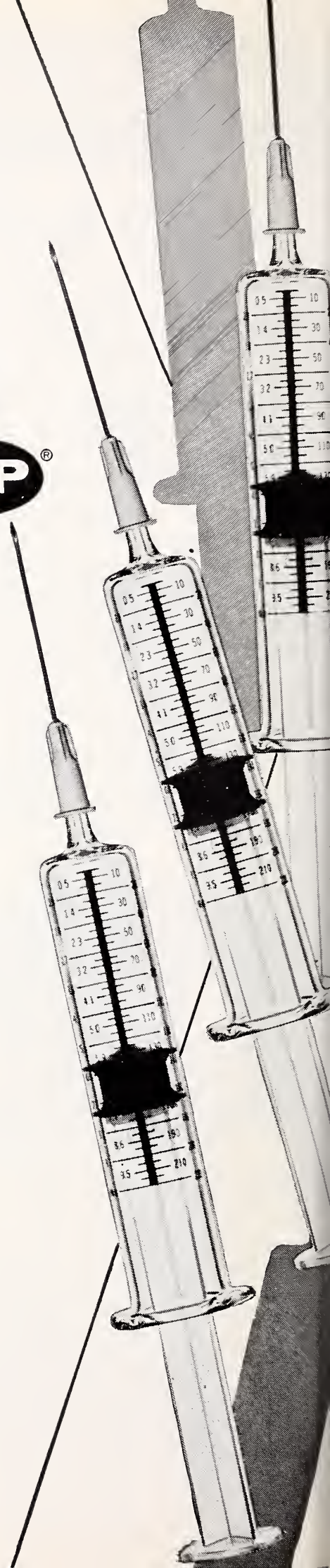
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New Anti-Hemorrhagic Agent

Epsilon Aminocaproic Acid[†] for Control of Hemorrhage After Transurethral Prostatic Resection: A Control Study

J. W. WARREN, JR., M.D., and K. E. STANLEY, JR., M.D., Wichita*

THE ONLY SERIOUS problem arising directly from surgery of the prostate gland is the control of hemorrhage. The prostate is a vascular organ, and when hypertrophic its vascularity is increased. When urination is obstructed the gland is also subject to venous engorgement. In addition, the prostatic tissue is rich in fibrinolysin activator which is released when the tissue is traumatized. Urinary fibrinolysis, usually a normal physiologic process, may also be involved in the complications which follow prostatectomy.

The blood loss during surgery can ordinarily be adequately controlled by electrocautery. Postoperative bleeding is more difficult to control because of the presence of plasmin activated by substances in the prostatic tissue and urine, and the resultant instability of the clots formed. A number of methods have been devised to prevent this postoperative blood loss. Although hypothermia is reportedly effective,^{1, 2} good statistical evidence has not been presented in substantiation. The procedure is not without some danger, and its value is doubted by some investigators.^{3, 4}

Estrogens, adrenochrome semicarbazone, and vari-

ous other chemotherapeutic agents have been used to control hemorrhage without outstanding results.⁵ Recently, a new agent has been introduced and some

Ninety-nine patients were studied in a double-blind evaluation of the efficacy of epsilon aminocaproic acid for the control of hemorrhage during and after transurethral prostatic resection. Although the active drug was more effective in controlling postoperative bleeding, the blood loss in the control group was also relatively small. Nausea, vomiting, and one case of hypotension were noted but differentiation between treatment and anesthesia as the cause could not be made. The use of epsilon aminocaproic acid, for various reasons, is recommended for unusual postoperative situations but not for routine use in controlling the hemorrhage following uncomplicated transurethral prostatic resection.

* From the Department of Urology, Wichita Clinic, Wichita, Kansas.

[†] AMICAR®—Registered trademark of Lederle Laboratories, Division of American Cyanamid Company, Pearl River, New York.

favorable reports published.^{6, 7, 8} This drug, epsilon aminocaproic acid, is a synthetic monoamine carboxylic acid closely related to lysine. Its anti-hemorrhagic

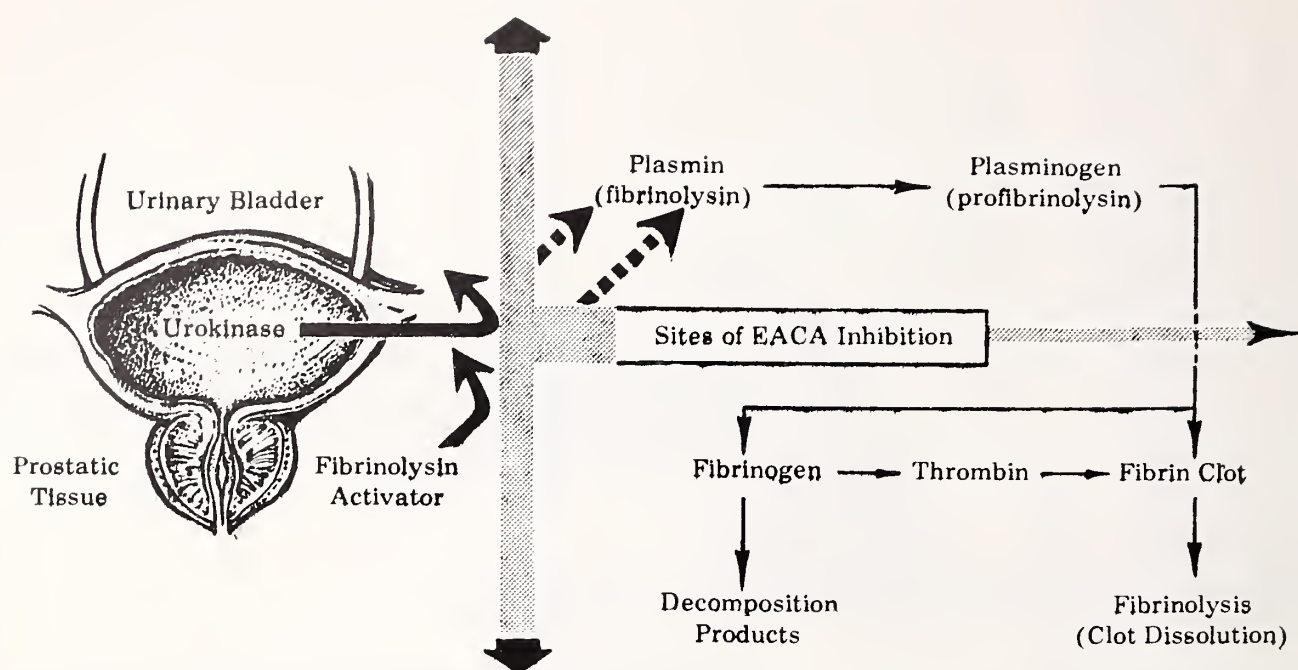


Figure 1. Sites of Epsilon Aminocaproic Acid Activity.

activity is dependent on its ability to block the formation of plasminogen which is activated by various substances present. This is a logical approach since the severity of bleeding seems to depend on the concentration of circulating "decomposition products" produced by the lysing action of plasmin on fibrinogen. This action occurs primarily at the initial step by inhibiting the plasminogen activator substances and to a lesser extent, by blocking the action of the plasmin or fibrin (*Figure 1*).

The object of this study was to evaluate the efficacy of epsilon aminocaproic acid in controlling bleeding after transurethral prostatic resection under controlled conditions, and to analyze the results by statistical methods.

Method

Ninety-nine male patients scheduled for transurethral resection of the prostate gland were studied. Their ages ranged from 45 years to 90 years. Almost 70 per cent (69) of these patients were between 61 and 80 years of age. The age distribution was the same in the group of 49 patients treated with active drug as it was in the group of 50 who were given placebo.

Both the epsilon aminocaproic acid and the placebo were given by the same routes and in the same dosage. Sufficient amounts of intravenous and oral medications for each patient were made into kits which were identified only by a numerical code. Kits were assigned to patients in a random manner. Baseline hemoglobin values were determined for each patient

prior to surgery. The dosage schedule for each patient required the intravenous administration, immediately following surgery, of six grams of the unknown agent dissolved in five per cent glucose in water given over a period of six hours. Then six-gram oral doses were administered every six hours until ten doses were given.

A series of specimens were collected for analysis. The first specimen consisted of all irrigation fluid and catheter drainage collected from the time of surgery until seven o'clock the following morning. The second specimen was a collection of all drainage during the following 24 hours. Aliquots from these collections were analyzed for hemoglobin content and the volume of blood lost was calculated from these data by using the patient's preoperative hemoglobin value. Student's t-statistics were calculated to compare the effectiveness of epsilon aminocaproic acid with that of the placebo. This was done for hemoglobin values and calculated blood loss on each specimen. These t-values were then combined by the statistical method of R. A. Fisher for combining probabilities from independent significant data, and the results reported as chi-square with degrees of freedom equal to twice the number of independent probabilities involved.

Results

Data were classified according to the weight of prostatic tissue removed and the malignancy or benignity of the tissue. Analysis of the data shown in *Table 1* indicates that the laboratory values obtained

TABLE 1
STATISTICAL ANALYSIS OF LABORATORY VALUES FROM SPECIMEN NO. 1

<i>Tissue Classification</i>	<i>Mean Grams Hb</i>		<i>Prob- ability</i>	<i>Mean cc Blood</i>		<i>Prob- ability</i>
	EACA†	PLACEBO		EACA	PLACEBO	
Less than 20G—non-malignant	9.27	11.10	.3694	64.35	85.37	.3055
Less than 20G—malignant	6.52	10.80	.2514	43.09	74.70	.2314
20G or more—non-malignant	14.41	28.51	.0984	116.62	200.23	.1449
20G or more—malignant*	11.75			86.1		

* Two patients both received EACA.

† Epsilon aminocaproic acid.

from the first specimen collected do not distinguish between epsilon aminocaproic acid and placebo. The administration of the active drug did not significantly effect the blood loss during this period.

Data derived from the second specimen which was taken later in the postoperative period showed significant decreases in hemoglobin values and blood loss when epsilon aminocaproic acid had been administered (*Table 2*). Individual clinical responses which would indicate the over-all success of the surgery were not recorded because these data were not pertinent to the evaluation of blood loss in this study. Each patient was, however, closely observed for symptoms of any undesirable effects of the treatment. In 17 patients treated with epsilon aminocaproic acid and in nine receiving placebo, nausea and vomiting were observed in the postoperative period. All of these were of minor consequence and well controlled by the administration of 50 mg of dimenhydrinate.§ One of these patients, a 71-year-old man who was treated with epsilon aminocaproic acid, became hypotensive during this period. This reaction was of ma-

jor importance but did not require the discontinuation of therapy. In our evaluation of these effects it was impossible to determine whether they were related to the treatment administered or to the anesthesia; however, in the last case the possibility of abnormal retention of epsilon aminocaproic acid due to renal insufficiency should be considered.

As a part of the clinical evaluation of this treatment the attending urologist, on the basis of the gross appearance of the catheter drainage, attempted to guess which drug the patient was receiving. Of 89 patients so evaluated, it was possible to guess correctly in 60 cases, and in 25 cases the guess was incorrect. In four cases the physician said he could not decide.

Discussion

The chief hazard in performing transurethral prostatic resections is hemorrhage. Operative hemorrhage is best controlled by fulguration of severed vessels. Postoperative bleeding, which occurs frequently, is more difficult to control. We have had little success with currently used methods including manipulation of the catheter and its hemostatic bag, local hypothermia, and the various chemotherapeutic agents.

TABLE 2
STATISTICAL ANALYSIS OF LABORATORY VALUES FROM SPECIMEN NO. 2

<i>Tissue Classification</i>	<i>Mean Grams Hb</i>		<i>Prob- ability</i>	<i>Mean cc Blood</i>		<i>Prob- ability</i>
	EACA†	PLACEBO		EACA	PLACEBO	
Less than 20G—non-malignant .....	.94	1.74	.0780	7.87	14.66	.1038
Less than 20G—malignant .....	.37	3.08	.0374	2.84	22.97	.0482
20G or more—non-malignant	1.67	3.82	.0549	15.25	30.08	.1019
20G or more—malignant* .....	.32			2.4		

* Two patients both received EACA.

† Epsilon aminocaproic acid.

§ DRAMAMINE®—Registered trademark of G. D. Searle & Co., Chicago, Illinois.

The present study, for which the data are presented, indicates that epsilon aminocaproic acid is an effective agent for this purpose. This is apparent both statistically and clinically. However, it must be noted that the blood loss was relatively small in the control group in this study. It is also impossible to ascertain that the side effects noted, although of minor consequence, were specifically attributable to the use of epsilon aminocaproic acid. It is known from animal toxicity studies and from limited studies in man, that certain adverse effects such as nausea, cramps, diarrhea, etc. occur occasionally with the use of this drug and that in certain patients it is contraindicated. The drug should not be used in patients with renal impairment, nor in women of child-bearing age. Patients who have an active intravascular clotting process should not receive this drug, and care should always be taken, as in any other intravenous therapy, to avoid the occurrence of thrombophlebitis.⁹ For these reasons we do not recommend the routine use of this agent. Rather, its use should be reserved for those cases with severe postoperative bleeding. We have used it under these circumstances on several occasions with impressively effective clinical results.

Considering that epsilon aminocaproic acid presumably exerts its action by inhibiting the activation of plasmin, one could reasonably assume that intravascular thrombosis would be a possible consequence of its use. It has also been postulated that in vivo extravascular clots which incorporate epsilon aminocaproic acid may not undergo spontaneous lysis as do normal clots.⁸ Since none of the patients in our study showed evidence of local or systemic fibrinolysis, nor of thrombosis, we suggest the possibility of the involvement of a more complex mechanism.

References

1. Franks, D. P. and Cockett, A. T.: Local hypothermia of the urinary bladder during transurethral surgery. *Anesthesiology* 22:15-19, 1961.
2. Landes, R. R.; Leonhardt, K.; Ransom, C. L. and Davila, J.: Localized hypothermia for transurethral prostatic resection. *J. Urol.* 82:247-248 (Aug.) 1959.
3. Creevy, C. D.: Aids to hemostasis during transurethral prostatic resection. *J. Urol.* 93:80-82 (Jan.) 1965.
4. Madsen, P. O.; Bohlman, D. C. and Madsen, R. E.: Local hypothermia during transurethral surgery. *Anes. Anal.* 44:734-736 (Nov.-Dec.) 1965.
5. Durante, L. J.; Moutsos, A.; Ambrose, R. B.; Duncan, W. Y.; Fleming, W.; Zinsser, H. H. and Phillips, L. L.: Post-prostatectomy bleeding: Analysis of consequences of control by clotting agents and hypothermia. *Ann. Surg.* 156:781-792 (Nov.) 1962.
6. Lawrence, A. C. K. *et al.*: The effect of EACA on blood loss after suprapubic prostatectomy. *Brit. J. Urol.* 38:308-310 (June) 1966.
7. Andersson, L.: Simultaneous anticoagulant and antifibrinolytic therapy in connection with prostatectomy. *Quad. Coagulazione* 11:5-8 (Jan.) 1966.
8. Nilsson, I. M. *et al.*: EACA as a therapeutic agent. *Acta Med. Scand., Suppl.* 448, 180:4-46, 1966.
9. Data submitted to Lederle Laboratories by clinical investigators. In press.

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The Kansas students were selected by the medical school authorities on the basis of academic qualifications, financial need or both. They are: Fred N. Kittooy, Hutchinson, and M. Scott Linscott, Jr., Topeka. Both are members of the class of 1969 at the University of Kansas School of Medicine and 1965 graduates of the University of Kansas.

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Monster Acardius Parasiticus

—Report of a Case

PAUL A. KAELSON, M.D., *Wichita*

IT HAS BEEN estimated that this type of monster occurs only once in 34,600 deliveries. Boronow and West¹ have suggested that it be called "monster acardius parasiticus," and I agree that this best describes the abnormality. I also agree with them in their feeling that this name should replace the other subdivisions such as acardius amorphous and acardius acephalus and acardius myelocephalus.

Case Report

A 19-year-old, white, primigravida, having had an uneventful prenatal course, entered the hospital in active labor. Labor progressed normally and a normal six-pound, three-ounce male baby was delivered without difficulty. It was then noted that the uterus remained enlarged and it was felt that this was simply a previously undiagnosed normal twin. The uterus was explored and with the initial palpation, it appeared that the twin would be a double footling. It soon became apparent that this was not a double footling, but that the feet were fused together and with simple traction the legs could not be brought down. The heart tones were not audible and the attempt of a rapid delivery was met with much resistance in that it seemed there was no way to get the feet extracted. The uterus was explored and it was determined that the monster or "thing" had no arms nor legs but appeared to be a rounded mass of smooth, firm, tissue. Consultation was sought immediately and Dr. Howard Clark came to the rescue. With much fundal pressure, the feet could be brought down sufficiently so that a towel could be wrapped around for traction. After much force from above and much pull from below, a mass that looked like a large shrimp was extracted. I learned later that one of the complications with the delivery of such a monster is the rupture of the uterus. It is easy to see how this could happen, since we worked with the extraction for some 20 to 30 minutes. The mother was delivered under general anesthesia, the blood loss was minimal, and the normal twin was in excellent condition.

Pathology Report

GROSS DESCRIPTION

General Inspection: The body was that of a curved structure without a head, eyes, and normal

extremities (*Figure 1*). At the terminal end there were four toes (two on each foot), each separated by the distance of two toes, resembling a flipper. On the septal end, sparse light brown hair, as well as several

A case of monster acardius parasiticus is presented and the rarity (1 in 34,600 deliveries) is discussed. The fetal circulation is discussed, with illustrations by x-ray and contrast media.

blebs, were seen. These blebs were filled with clear fluid and averaged approximately 2 cm in diameter. Near the septal end a cord-like structure, which was



Figure 1

thought to be the umbilical cord, was seen. It had a very narrow, soft, tube-like appearance. When it was dissected, however, it contained grossly the cecum and ascending colon and appendix, so that it actually represented an omphalocele. There was an opening, approximately 10 cm from the toes in the left lower portion of the body structure, which exuded clear fluid when pressure was applied.

The body measured 28 cm and weighed approximately 1,700 gms. The body was x-rayed and there appeared to be a skeletal structure including a fused pair of femurs, some bones of the foot, portions of the pelvis, a tibia with an incomplete fibula, rib, and vertebral column, and apparently the basal portion of the skull.

Internal Examination: The skin, subcutaneous fat, and edematous areolar tissues were removed, leaving the skeletal structure. In the body cavity, loops of small and large intestine, as well as one testicle and an epididymis, were identified. No kidney, heart, or lungs were seen. There was, however, a portion of brain and spinal cord evident in the cephalad portion of the specimen. There was a yellowish, crescent-shaped structure, which resembled the adrenal gland, close to the testis.

Examination of the skeletal structure revealed what appeared to be a basilar portion of the skull representing occipital bone, a vertebral column, irregular, gnarled portions of the rib cage, pelvic bone, a double femur, and an incomplete fibula which arose from the distal portion of the tibia. Portions of bony structure, including the toes, were seen in the foot. The patella was also noted. The foot was placed so that the toes pointed backward instead of forward in relation to the body.

MICROSCOPIC DESCRIPTION

Internal Organs: Heart or lung tissue could not be demonstrated and no evidence of liver or spleen was seen. Sections of the gut, showing normal development, were noted. This included the mucosa and wall of the gut. Sections of normal, fetal-type testes were noted; no evidence of kidneys could be demonstrated. The surrounding soft tissue showed marked edema of the fat. Some unremarkable skeletal and smooth muscles were seen.

X-ray Report: This specimen had a draining sinus on the left side of the ventral surface, arising at about the level of the distal end of the femurs. A bulb was blown up on a Foley catheter; the end of the catheter was inserted into this draining sinus and some pressure was held against the mouth of the sinus. Thirty cubic centimeters of 50 per cent hypaque was injected, 5 cc at a time, and various spot films were taken of the specimen (*Figure 2*). This contrast media filled a dilated, vascular-like system



Figure 2

that extended throughout the length of the specimen. The large dilated vessels were in the most ventral portion. A rather large tortuous vessel extended dorsally at about the level of the pelvis or lower lumbar region. This vessel measured approximately 0.5 cm in diameter throughout its entire course. The ventral vessels were more greatly dilated and measured up to 1.5 cm in diameter. These extended toward the cephalic end. This system appeared to be bilateral and tended to branch peripherally to quite small vessels that were difficult to identify individually. This apparently represented a primitive vascular system and, interestingly enough, it was lying quite lateral to the poorly developed rib structures.

Conclusion: The findings were those of an ill-defined semilunar mass of soft tissue which contained various osseous structures that were apparently attempting to develop into specific bone, such as vertebral bodies, femurs, and so forth, with fusion of the extremities (*Figure 3*). These findings were consistent with those usually seen in the group of acardiac monsters. Also, a poorly developed, primitive vascular system was demonstrated with contrast media.

Comments

There have been 152 cases (153 with this case) reported in all the world literature, or one in 34,600 deliveries.² The heart of the normal fetus must pump blood through the acardiac twin and it has been

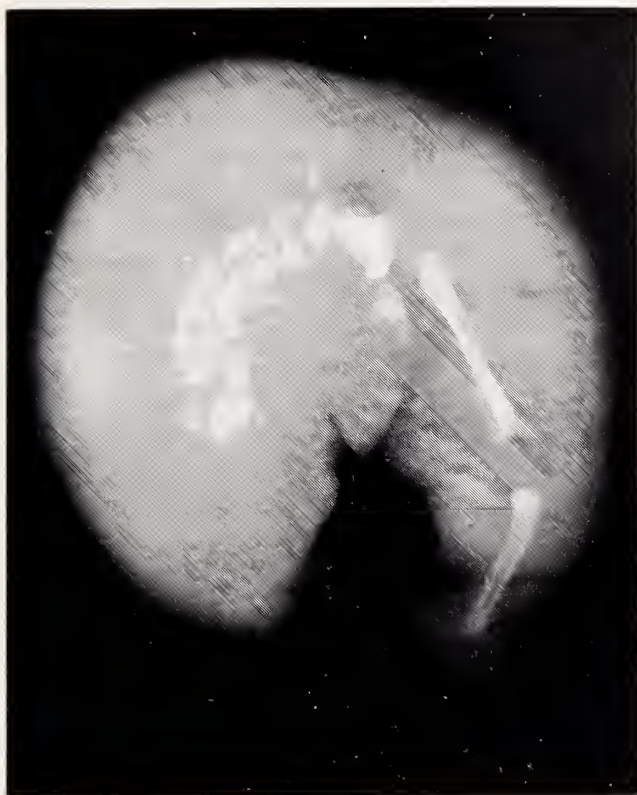


Figure 3

thought by some investigators that this might produce some hypertrophy in the heart of the normal twin. However, in our case the EKG showed no changes. The legs and pelvis develop in some rudimentary way, but the heart never develops. No one has been able to explain why this occurs. The acardiac twin is a parasite to the normal twin and the blood seems to flow into the monster by some low pressure system or back-flow. It is difficult and often impossible even at autopsy to demonstrate the circulation because many times a true umbilical cord cannot be identified. Dr. Donald Sleeper very capably injected con-

trast dye into this specimen and the x-ray (Figure 2) showed the filling of the sinus-like cavities present in the structure.

Sex determination is impossible by external examination and rarely possible by internal examination. However, this specimen possessed identifiable testicular tissue of normal fetal type, which corresponded to the normal male twin. Benirschki⁵ has shown, by a report of five cases of chromatin sex determination, that the sex of associated twins is identical. This supports the theory that the twins are derived from a single ovum.

It is interesting to note the similarity of all the reported pictures of examples of holardius acephalus.⁴ Almost all have the round, smooth, shrimp-like appearance with the small foot at the distal end of the specimen. The actual delivery is also very similar in reported cases. The first twin comes easily and is the normal twin. The abnormality then follows, usually with the foot presenting as it did in this case. I have found no reports where the abnormality presents first followed by the normal baby, nor have I found reports of abnormalities in the normal twin. It appears to be perfectly healthy and all the abnormalities seem to be with the parasite.

I wish to express my gratitude to Dr. Howard Clark for his part in the delivery, and to Dr. Donald Sleeper for his radiological studies, to Dr. W. G. Eckart for the anatomical dissection and to Mr. Ted Krause for the photography.

References

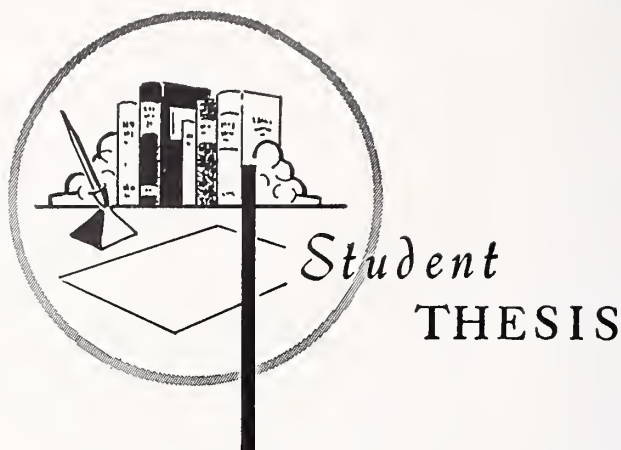
1. Boronow, R. C., and West, R. H.: *Am. J. of Ob. and Gyn.*, 88, No. 2: Jan. 15, 1964.
2. Napolitoni, F. D., and Schreiber, I.: *Am. J. of Ob. and Gyn.*, 80:582, 1960.
3. Gillim, D. L., and Hendricks, E. H.: *Ob. and Gyn.*, 2:647, 1953.
4. Potter, E. L.: *Pathology of the Fetus and the Newborn*, New York Pub. Inc.: 182, 184, 1957.
5. Benirschke, K.: *Ob. and Gyn.*, 14, No. 1: July, 1959.

KMS MEMBERSHIP DIRECTORY—1969

The 1969 Membership Directory will be printed in July. It would be helpful if you would check your listing in the 1968 directory. If the information is incorrect, or if you have recently become a member of the Kansas Medical Society and were not listed last year, please notify the Society office in Topeka.

Membership listings include: name, address, telephone number, year of birth, sex, medical school, year of license and specialty.

Corrections or additions should be sent to the Kansas Medical Society, 1300 Topeka Avenue, Topeka, Kansas 66612.



Methods of Treatment of Status Epilepticus

CORNELIUS HELLING, JR., M.D.,* *Dallas, Texas*

Introduction

SINCE STATUS EPILEPTICUS was first recognized as a disease process, treatment has been a problem well known to the medical profession. Because of the associated hypoxia, respiratory and metabolic acidosis, and hyperpyrexia leading eventually to the onset of circulatory collapse and finally death, status epilepticus has become a medical emergency as regards to treatment. At the present time there are some definite but unsuccessful methods of treating status epilepticus. This paper attempts to briefly describe status epilepticus and the various forms of treatment reported over the years and finally to arrive at some conclusion as to a reasonably successful method of treating this medical emergency.

Description

Status epilepticus has been described as a state in which patients experience a series of epileptic seizures without regaining consciousness between them. This description is such that it differentiates status epilepticus from serial epilepsy, petit mal status, and epilepsy partialis continua, in that consciousness is either regained between attacks, as in serial epilepsy, or is never lost, as in the last two. Status epilepticus is most commonly seen in symptomatic epileptics but

it may, though rarely, herald the onset of a central nervous system disorder.

Background and Incidence

The term first appeared in the English language back in 1868 in Bazire's translation of Trousseau's *Lectures on Clinical Medicine*. Interest arose in status epilepticus as a clinical problem following the introduction of bromides as a method of treatment of epileptic seizures. It was found that, in patients treated with bromides for epileptic seizures, withdrawal from this medication occasionally led to a series of seizures without regaining consciousness between attacks.

The incidence of status epilepticus is variable. In a report by Hunter of epileptic admissions to the National Hospital, Queens Square, out of 2,404 admissions over the ten-year period between 1948 and 1957, 30 patients or 1.3 per cent had status epilepticus. Janz reports an incidence of 3.7 per cent in a series of 2,588 patients with epileptic seizures for the period between 1946 and 1959. Lennox estimated that approximately 8 per cent of clinic or private patients had one or more attacks of status epilepticus. Turner found that 5 per cent of 280 patients with epilepsy suffered status epilepticus at one time or another.

Treatment

Numerous forms of treatment have been suggested for status epilepticus. In 1933 Frederic Storchheim used intravenous magnesium sulfate in a series of

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Helling is now in resident training at Baylor University Medical Center, Dallas, Texas.

eight patients. The relief obtained was purely symptomatic and several of the patients had repeated attacks after recovery from the first attack. But, the interval after the attack during which they were free from convulsions was longer than usual. The dosage recommended by Dr. Storchheim was 10 cc of a 25 per cent magnesium sulfate solution.

Barbiturates were first introduced in 1912 by Hauptmann for the treatment of epilepsy. The first barbiturate used was phenobarbital. After prolonged use of this agent, it was noticed by several that discontinuance of the drug resulted in recurrent seizures often with shorter intervals between and increased intensity of attacks. D. Janz and G. Kantz recommend an initial dosage of 400 mg of Luminal (200 mg IM and 200 mg IV). It has been found that the amount necessary to control the status epilepticus is so great that there are side effects from the oversedation.

In 1949 Whitty and Taylor treated 25 patients with status epilepticus with paraldehyde. Their regimen for the average adult included 8 to 10 ml of paraldehyde intramuscularly as soon as possible after the onset of status. They found that in most cases the seizures would be stopped within 30 minutes. Should the seizures continue after the initial treatment, however, they recommend follow-up treatment with 5 ml of paraldehyde intramuscularly every 30 minutes until seizures stopped. (Focal twitching without a tendency to spread did not require further treatment.) Occasionally, in some patients, they found it necessary to use continuous intravenous drip paraldehyde in a solution of glucose and saline or plasma. For children their recommended dosages were 1 to 2 ml intramuscularly for infants, and 2 to 3 ml intramuscularly for children over six months of age.

In 1956 the parenteral use of diphenylhydantoin sodium (Dilantin®) was first described for treatment of seizures. There was a danger involved in using sodium phenobarbital intravenously or intramuscularly to suppress convulsions because of the severe depressant effect this drug has on respiration. Dilantin does not depress respirations or act as an anesthetic. In severe status epilepticus, 150 to 250 mg of Dilantin injected intravenously was sufficient. If the seizures failed to subside, however, subsequent to this initial dose, a dose of 100 to 150 mg was given 30 minutes later. A dose of 250 mg was found to be sufficient in terminating most cases of status epilepticus. Carter studied 121 episodes of status epilepticus in 85 patients. Ninety-seven of these cases were controlled with one injection. Seventeen of the remaining 24 were controlled with two doses, and seven episodes in five patients required a barbiturate or other medication in addition to the Dilantin. The remaining five patients were controlled by Dilantin

(250 mg IM) every six hours for two to three days.

In 1958 Taverne and Bain used lignocaine as an anticonvulsant. They used injections of 200 to 400 mg of lignocaine hydrochloride (1 or 2 per cent solutions). In their study of three patients, they found an anticonvulsant action which varied with the logarithm of the dose given.

In 1963 Bladin used intracarotid injections of sodium amylobarbitol in strengths of 25 mg/ml. Initial doses were 125 to 150 mg up to as high as 400 mg. He felt that the advantage to this method of treatment was that a large dose of cerebral depressant could be delivered to the area of the brain involved without subjecting the cardiorespiratory center to this high dosage. A number of his cases were monitored with electroencephalogram tracings. He found the duration of the action of doses of sodium amylobarbitol up to 200 mg to be 10 to 20 minutes, but with larger doses, 30 to 35 minutes. In all his cases, however, follow-up therapy was necessary with parenteral diphenylhydantoin and amylobarbitol. (The dosage of diphenylhydantoin being 125 to 250 mg intravenously immediately followed by 250 mg intramuscularly every six to eight hours.) In addition to the necessary follow-up therapy, another problem is that this form of treatment is inadvisable for use in the young and hence is applicable only to adults.

Acetazolamide (Diamox®) has also been used in the treatment of status epilepticus. In a study by T. Wada and associates, the majority of the patients were ten years old or younger. In the patients with frequent seizures, especially status epilepticus, there was complete freedom of seizures in 66 per cent of the patients treated. They thought this to be a dramatic effect in relieving the emergency due to status epilepticus and that Diamox should be used when indicated. However, it is not certain whether their meaning of the term status epilepticus is the same as that described in the beginning of this paper. This medication gave only transient relief and usually a seven to ten day course of conservative treatment was necessary.

Carter recommends the use of intravenous urea (Urevert®) in the treatment of status epilepticus. His usual dosage was 1.5 gm/kg given over a period of 20 minutes to two hours. His infusions began within five to ten minutes after the onset of status epilepticus. Of the 57 patients in his study, over 50 per cent had received barbiturates either intramuscularly or intravenously for the immediate control of status epilepticus. He found that 11 of his patients were controlled within three minutes after beginning the intravenous urea. Only a total of ten patients remained in status for longer than six minutes after the treatment was begun. Only three patients had recurrence of the status epilepticus but these responded

to the second infusion. Carter found the average time for response to the urea was about five minutes compared to about ten minutes for the barbiturates.

In cases of status epilepticus not responsive to large doses of parenteral anticonvulsant drugs, Evanson and James and Whitty reported on the use of general anesthesia along with curarization with intermittent positive pressure respiration. The rationale behind this method seems to be to suppress peripherally the motor manifestations of the convulsions. In order to judge the effectiveness of this form of treatment, it is necessary to simultaneously monitor the patient's electroencephalogram, so that one may regulate the dosage of curare, determine when central seizure activity has stopped, and when the muscle relaxant may be withdrawn and muscle function allowed to return. Along with this form of treatment one must also use the anticonvulsant drugs.

The more recent theories on the treatment of status epilepticus are in articles by Gastaut and co-workers and Lombroso. These involve the use of diazepam (Valium®). This drug has been found to be effective orally in the treatment of chronic epileptics. Their study over a six-month period involved 23 patients with 27 attacks. They used slow intravenous or intramuscular injections of 10 mg of Valium. Of these there were 15 cases of generalized convulsive status epilepticus, 12 of which were completely relieved of the status by a single (and occasionally more) intravenous or intramuscular injection of 10 mg of Valium. This abatement was brought about during slow intravenous injection or within 20 seconds after completing the total injection. It required a few minutes

longer using intramuscular injections. Valium, however, affects only the actual status epilepticus and not its underlying cause or accompanying phenomena. Electroencephalograms were taken before and during the injections of Valium and were found to return to normal during the interseizure periods.

Conclusions

When first seeing a patient in status epilepticus, the main concern is the treatment of these attacks and prevention of the dangerous effects. Once this is done then one should search for the underlying cause of the status epilepticus, which varies from tumor, post-traumatic, infection to idiopathic.

Paraldehyde intramuscularly seems to be an old but reliable method. With the dosages recommended above, most cases of status epilepticus can be terminated in a matter of 30 minutes. However, if any other type of medication or form of treatment could terminate attacks in a shorter period of time and still have minimal side effects, it most likely would gain the popularity paraldehyde now has. The use of Diazepam® may be a step in this direction, because given intravenously it has a quick onset and may terminate attacks in a shorter period of time. The only drawback is that it has not been used widely enough to confirm its effectiveness as reported in the literature. Possibly with more widespread use, it will eventually take the place of paraldehyde in the treatment of status epilepticus.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.

DIAGNOSIS AND MANAGEMENT OF CANCER OF THE COLON-RECTUM

A new 17-minute film for physicians and medical students released by the American Cancer Society, stresses the importance of routine procto exams and demonstrates detection and treatment of both symptomatic and asymptomatic cancer of the colon and rectum. To arrange screening of this film call or write the American Cancer Society, Kansas Division, Inc., 824 Tyler Street, Topeka, Kansas 66612.



CP + T

Newsletter

Drug Absorption

FOR A DRUG TO PRODUCE an effect, it must reach a specific receptor site. Many factors can influence the proportion of ingested drug that reaches the receptor site in an active form. These factors include: rate of absorption across biological membranes such as gastrointestinal mucosa; degree of plasma protein binding; degree of nonspecific tissue binding; biotransformation; excretion in kidney, and competition with other substances at the receptor site.

Following ingestion, a drug must be absorbed from the gastrointestinal tract. For the vast majority of drugs, the process of absorption depends upon the passive process of diffusion. As a rule of thumb, for a drug to be absorbed, it must be lipid soluble (high lipid-water partition coefficient) and exist in the unionized form since drugs are organic molecules and the ionized form usually has low lipid solubility. The proportion in the unionized form depends on the dissociation constant of the compound and the pH of the solution in which it is dissolved.

The majority of drugs are either organic acids or bases and can exist in ionic forms. The dissociation constant is the fraction which is present in ionized form when the compound is in water. For convenience, this constant is expressed mathematically as the negative logarithm of the acidic dissociation constant of pKa. The relationship between the pKa, pH and degree of ionization is expressed by the Henderson-Hasselbalch equation.

$$\text{For acids } \text{pKa} = \text{pH} + \log \frac{\text{unionized}}{\text{ionized}}$$

$$\text{For bases } \text{pKa} = \text{pH} + \log \frac{\text{ionized}}{\text{unionized}}$$

This relationship indicates that when $\text{pKa} = \text{pH}$,

equal amounts of the drug exist in ionized and unionized form.

For acids low pKa = strong acid

high pKa = weak acid

For bases low pKa = weak base

high pKa = strong base

A strong acid would be completely ionized and thus poorly absorbed.

Nearly all weak acids ($\text{pKa} > 2.5$) are readily absorbed from the stomach since they exist primarily in nonionic form in the stomach. Very strong acids are poorly absorbed since they are completely ionized. Most basic drugs are poorly absorbed from the stomach since they are highly ionized in acid solution. However, very weak bases ($\text{pKa} < 2.5$) are sufficiently unionized even in strong acid to be significantly absorbed.

A similar situation occurs in the kidney where drugs filtered at the glomerulus are reabsorbed in the tubule depending upon lipid solubility and the proportion of unionized form. If we change the urinary pH, the proportion of drug in the unionized form may change markedly. A knowledge of the pKa of a drug can help in treatment of overdosage. For example, alkalization of the urine of patients will increase the clearance of salicylic acid ($\text{pKa} 3.0$) and phenobarbital ($\text{pKa} 7.2$) because a large proportion will be in the ionized form and not reabsorbed as the drugs pass through the tubule. At pH 7.4 or higher phenobarbital is less than 5 per cent unionized, but secobarbital ($\text{pKa} 7.9$) is 98 per cent unionized making alkalization a less effective therapy for the latter drug. On the other hand, acidification of the urine would be the method by which to increase the excretion of amphetamine ($\text{pKa} 8.8$).

The President's Message

DEAR DOCTOR,

The current year of our Society activities is nearing its completion. As we approach the time of the State Meeting we can afford the luxury of a backward glance.

There have been 1,170 physicians' trips throughout the state and to all sections of the country since last May on Society business. Our Commissions, Committees and the Council have functioned smoothly producing the clear-cut resolutions and reports which appear in this issue of the JOURNAL and which will be presented at the House of Delegates.

Our Executive Staff of six has served us pleasantly and efficiently with experienced guidance by Oliver and able assistance from Swede.

During this Legislative Session, Oliver has kept our officers informed daily of all legislation affecting our patients. Our weekly Legislative Bulletin is matched by no other state. I am sure our patients never have all of the legislation—or the lack of it—which we feel would be in their best interests, but this has been a banner year in achieving the constructive changes we recommended.

The JOURNAL OF THE KANSAS MEDICAL SOCIETY remains among the top few in quality in the nation.

The Kansas Medicare and Medicaid programs are still models for other states.

Our relations with Kansas University Medical Center remain exemplary.

Our respected delegates to the AMA have made our influence felt nationally in a measure far beyond our numerical representation.

KaMPAC, our political arm, has the highest number of members in its history.

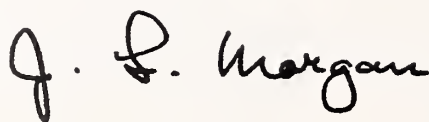
In January, the Council acted to purchase a building financed by an assessment of our members. We now have a base of operations of which we can be proud. It will serve us many years and will strengthen our efforts in countless ways. I urge you to stop by and see your new building.

The State Meeting in Salina has been carefully planned. It should be rewarding and most enjoyable.

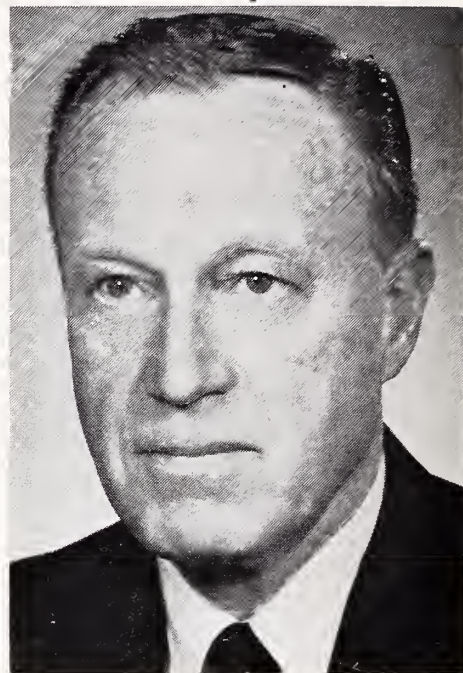
President-elect, Leland Speer, represents the wisdom of an exceedingly fine choice on your part. Knowing him as I do, I relax with confidence as I view the upcoming year under his calm and gifted leadership.

It has been an honor to serve as your president.

Sincerely,



President





Editorial COMMENT

The American Medical Association released figures of grants to approved medical schools for 1969, from the AMA Education and Research Foundation. It appears in this report that the University of Kansas School of Medicine will receive a check in the amount of \$18,575.41, which is considerably more than during the past few years.

A hasty examination of contributions to other schools reflects that only nine among the medical schools in the country will receive a larger amount than is given to Kansas. Most of these are found in highly populated areas in which are heavy concentrations of physicians.

This contribution largely comes from money contributed by the physicians and the medical auxiliary in this state. During 1968 Kansas physicians contributed \$7,354.71 and the Woman's Auxiliary to the Kansas Medical Society contributed \$10,260.37. Only 13 states, and again these are primarily those with a greater population, contributed larger amounts. Outstanding among all states, as is usually the case, is Illinois where more than \$200,000 was raised.

The outstanding support physicians of Kansas have given to their medical school is again demonstrated and again reflects the close cooperation that exists between the Medical Society and the school. It is well known this contribution serves a most worthwhile purpose and is gratefully received.

All who have contributed might wish to attend the President's Banquet at the Salina Country Club on Tuesday evening, May 6, at which time this check will be given to Dr. George Wolf, dean of the University of Kansas School of Medicine. Every-

one who contributed will wish to hear his brief statement of the manner in which this money will be used.

AMA-ERF

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Alex Brown, M.D.
606 Brown Building
Wichita, Kansas 67202

Frank V. DeLaus, Sr., M.D.
123 S. Fifth Street
Manhattan, Kansas 66502

William G. Eckert, M.D.
929 N. St. Francis
Wichita, Kansas 67214

Rex R. Fischer, M.D.
1133 College Avenue
Manhattan, Kansas 66502

John L. Kiser, M.D.
3333 E. Central Avenue
Wichita, Kansas 67208

Jerry L. Mathis, M.D.
5814 Russell Street
Shawnee Mission, Kansas 66202

William A. McClellan, M.D.
9009 W. 67th Street
Shawnee Mission, Kansas 66204

F. J. Moe, M.D.
415 W. Second Street
Hutchinson, Kansas 67501

Curtis H. Rhoden, M.D.
3333 E. Central Avenue
Wichita, Kansas 67208

Robert P. Sherman, M.D.
277 S. Coy Street
Kansas City, Kansas 66101

John E. Snyder, M.D.
Snyder Clinic
Winfield, Kansas 67156

Martin E. Sodomsky, M.D.
501 Mills Building
Topeka, Kansas 66612

David E. Street, M.D.
959 N. Emporia
Wichita, Kansas 67214

Arch W. Templeton, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

David H. Tweito, M.D.
1100 N. Main Street
Hutchinson, Kansas 67501

New KMS Executive Office

*Candid Shots Taken at Open House,
Sunday, March 9, 1969*

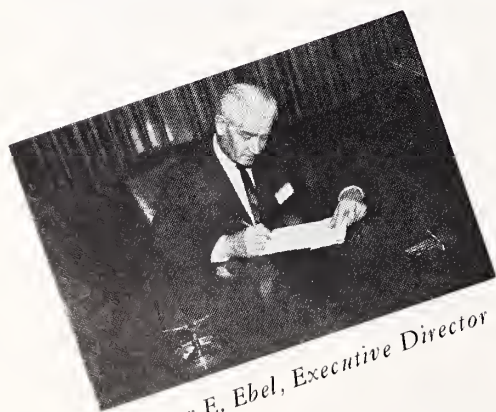
These pictures were taken at random during the open house, and show various areas of the office.

The wives of the members of the Executive Board and staff served as hostesses and gave the guests guided tours of the building.

The building is a one-story, brick structure, with full basement. The KMS offices include a general office, four private offices, plus work and storage rooms. In the basement are rooms for additional offices and storage.



1300 Topeka Avenue



Oliver E. Ebel, Executive Director



*"Swede" Swenson,
Executive Assistant*

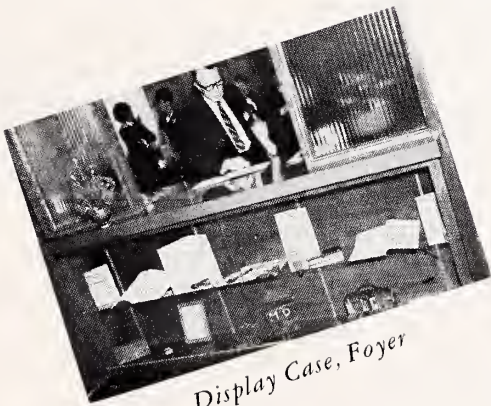
Offices of Executive Staff



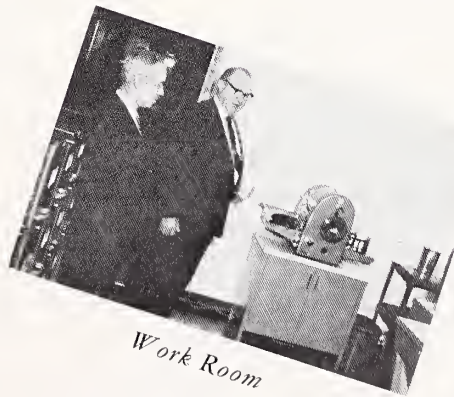
General Office



President and Mrs. J. L. Morgan



Display Case, Foyer



Work Room



Blue Shield

John Public is a long-time patient and is in for a physical right after the season's final KU-K-State game.

Both of you have an interest in Big Eight competition, especially the Jayhawk-Wildcat rivalry, which was televised.

By the time you've taken his blood pressure and entered it on his chart, the final score and intricate points of the game have been discussed, and the conversation turns to Blue Cross and Blue Shield's sponsoring portions of the Big Eight Conference telecasts.

As an early Blue Cross and Blue Shield subscriber, John can remember back when the combined rates were only \$12 a month. He hasn't had occasion to use his coverage since his daughter Susie had a T & A in '56, and he's concerned about the rising cost of premiums. He asks you, as a participating physician, if Blue Cross and Blue Shield shouldn't reduce their television advertising. He's heard somewhere that a minute's advertising for the Super Bowl costs about \$100,000. As much as Blue Cross and Blue Shield advertises, that's a lot of subscriber money spent for advertising, especially a nonprofit organization.

The truth is, John, along with many other Blue Shield subscribers, quite a few participating physicians, and interested Kansas legislators aren't fully aware of Kansas Blue Cross and Blue Shield advertising or the factors behind it. On the surface, it appears a lot of subscriber money is spent superfluously.

As a participating, or even non-participating physician, it will probably be of interest that the total Kansas Blue Cross and Blue Shield advertising budget for 1968, including radio, television and newspaper was \$192,640. For 1969, the total advertising budget of \$170,000 a decrease from 1968 of roughly \$22,500. The decrease is a result of eliminating radio advertising. Spread out over the Plan's 600,000 plus subscribers, advertising cost per contract is about five and one-half cents per month. Statistically

speaking, contract equals about 2.75 subscribers; so projecting that figure even farther, the cost reduction per subscriber per month would be about two cents on his premiums if all advertising were eliminated.

Of course, advocates of Ben Franklin's penny saved, penny earned philosophy might say, "Why is it necessary for Blue Cross and Blue Shield to advertise at all? They have about 35 per cent to 40 per cent of the state population enrolled now."

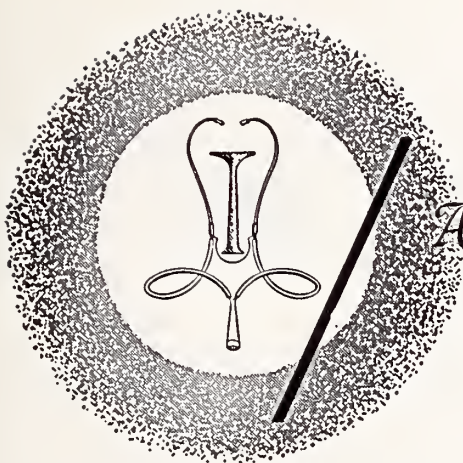
One of the main reasons is utilization economics. It's necessary for the Plan to steadily enroll new subscribers so benefits can be priced as economically as possible. One of the factors involved is that "new blood" needs to be brought in so a representative cross-section of health is represented. If all subscribers understood this one point they would be glad that Blue Cross and Blue Shield are growing instead of being static. One way the Plan differs from the commercials is that membership cannot be terminated because of heavy utilization of benefits. Advertising attracts this "new blood" and helps retain present subscribers by keeping them informed of new programs and changes in existing benefits. It also brings to the public's attention the advantages of Service Benefits and informs people how and when they may enroll.

Another reason for advertising is it helps the public better understand the reason for rising hospital costs which in turn reflect Blue Cross rate increases. (As you will recall in Blue Shield article in the January JOURNAL, it was stated that there had been no increase in Blue Shield rates for 1969.)

John Public may accept these explanations, or he may say, "Granted their advertising budget isn't as big as I thought it was, but what about the six-cent letter? Couldn't Blue Cross and Blue Shield reach more people for less money by mass mailings rather than use of television or newspaper ads?"

John has a good point, but he's a little bit to the left of the right. For example, it costs the Plan \$100

(Continued on page 194)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

APRIL

- Apr. 21-24 American Industrial Health Conference, for physicians and nurses, Shamrock Hilton, Houston, Texas. For more information contact the American Industrial Health Conference, 55 E. Washington St., Chicago 60602.
- Apr. 21-23 American Academy of Pediatrics, annual spring session, Sheraton-Boston Hotel, Boston, Massachusetts. Write American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204.

MAY

- May 4-7 *Kansas Medical Society, 110th Annual Session, Statler-Hilton Inn, Salina.*
- May 8 20th Annual Dr. F. G. Thompson, Sr. Lectureship, Thompson, Brumm & Knepper Clinic, 902 Edmond Street, St. Joseph, Missouri. Dr. R. H. Young, dean of Northwestern University Medical School and Chairman of the National Board of Medical Examiners will speak on the topic, "Examination and Licensure to Practice Medicine." The lecture will begin at 8:15 p.m.
- May 14-16 National Society for the Prevention of Blindness, annual conference, Pfister Hotel, Milwaukee, Wisconsin.
- May 23-24 Joint scientific meeting of the Kansas and Missouri Blood Bank Associations, Plaza Inn, Kansas City, Missouri. Of special interest will be a meeting on the evening of May 23 for all physicians who are interested in knowing about the new advances in typing, including typing of tissue for transplants. For more information contact: Perry Morgan, Ph.D., Community Blood Bank of Kan-

sas City Area, Inc., 4040 Main St., Kansas City, Missouri 64111.

POSTGRADUATE EDUCATION

University of Kansas Medical Center:

- Apr. 18 *Infectious Diseases*
- Apr. 21-23 *Anesthesiology*
- May 12-13 *Cardiac Auscultation*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

- Apr. 24-26 *Clinical Dermatology (limited)*
- May 12-16 *Medical Technology (Estes Park)*
- May 22-23 *The Battered Child*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

- May 5-6 *Genetics in Medical Practice*
- May 12-13 *Psychiatry and the General Practitioner*
- May 15-17 *Otolaryngology*
- May 22-24 *Surgery and 14th Annual Trauma Day*

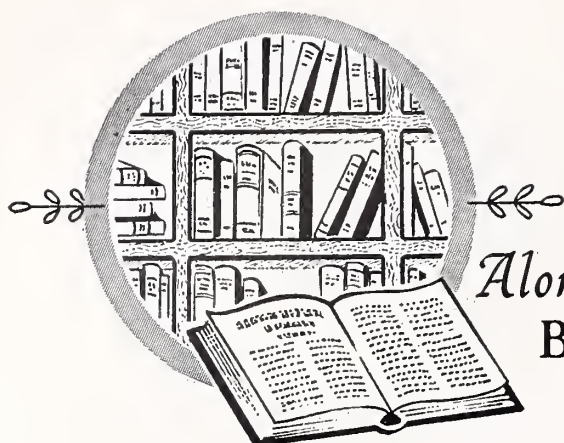
For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

New York University:

- Apr. 24-25 *Theory and Practice of Contact Lenses*
- Apr. 28-May 2 *Ophthalmology*

For further information write Office of the Recorder, Room 158MSB, New York University Postgraduate

(Continued on page 194)



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Allen, Richard C. Mental impairment and legal incompetency. Englewood Cliffs, N. J. Prentice-Hall, 1968.
- American Hospital Association. The volunteer in the hospital. Rev. ed. Chicago, 1963.
- American Medical Association. Committee on Medical-legal Problems. Alcohol and the impaired driver. Chicago, Ill., 1968.
- Behrman, Samuel J. Progress in infertility by 50 authors. 1st ed. Boston, Little, Brown, 1968.
- Borhani, Nemat O. Medical basis for comprehensive community stroke programs. Bethesda, Md., 1968.
- Calderone, Mary Steichen. Sexual health and family planning. New York, American Public Health Association, 1968.
- Carlozzi, Carl G. Death and contemporary man; the crisis of terminal illness. Grand Rapids, Eerdmans, 1968.
- Cogan, Lee. Negroes for medicine; report of a Macy Conference. Baltimore, Johns Hopkins Press, 1968.
- Conference on Mental Health Services for Adolescents, Hillside Hospital, New York, 1967. Mental health services for adolescents. New York, Praeger, 1968.
- Continuing medical education; a new emphasis. Chicago, American Medical Association, 1968.
- Drugs and your body, presented by the Educational Services Staff, Food and Drug Administration, Consumer Protection and Environmental Health Service, U. S. Department of Health, Education, and Welfare. Washington, U. S. Govt. Print. Off., 1968.
- Garb, Solomon. Cure for cancer; a national goal. New York, Springer, 1968.
- Hans Selye Conference, Mont Tremblant. Endocrine aspects of disease processes. St. Louis, Green, 1968.
- Hoffer, Abram. New hope for alcoholics. New Hyde Park, N. Y., University, 1968.
- Jefferies, B. L. Light on dark corners. New York, Grove Press, 1967.
- Major, Ralph Hermon. Old ties and new. Kansas City, Mo., Lowell Press, 1968.
- Mendel centenary: genetics, development and evolution; Proceedings of a symposium held at the Catholic University of America. Washington, Catholic University of America Press, 1968.
- National Leadership Conference on Venereal Disease, New York, 1968. VD—the challenge to man. New York, American Social Health Association, 1969.
- Nightingale, Florence. Army sanitary administration, and its reform under the late Lord Herbert. London, McCorquodale, Works, Newton, 1862.
- Pan American Health Organization. Facts on health progress. Washington, World Health Organization, 1968.
- Quay, Herbert Callister. Children's behavior disorders; and enduring problem in psychology. Princeton, N. J., Van Nostrand, 1968.
- Rachman, Stanley. Phobias: their nature and control. Springfield, Ill., Thomas, 1968.
- Regulation of the antibody response. Springfield, Ill., Thomas, 1968.
- Sheehy, James P. Handbook for air pollution. Durham, N. C., National Center for Air Pollution Control, 1968.
- U. S. National Institute of Mental Health. Community care of the mentally ill. Washington, U. S. Govt. Print. Off., 1966.
- Vincent, Clark E. Human sexuality in medical education and practice. Springfield, Ill., Thomas, 1968.

**USE YOUR MEDICAL
LIBRARIES
YOUR LIBRARIAN WILL BE
HAPPY TO ASSIST YOU**



Book REVIEWS

SURGERY OF THE AGED AND DEBILITATED PATIENT, by John H. Powers. W. B. Saunders Company, Philadelphia, 1968. 611 pages, illustrated. \$19.00.

Surgery of the aged is different. Dr. Powers, with the help of several writers, has completed a very helpful volume in dealing with the aspects of surgery of the aged.

The book is organized in chapters, each dealing with a specific aspect, such as "The Physiology of Aging"; "Vascular Surgery in the Aged"; and "Treatment of Cancer in the Older Patients."

Technical operative details vary little for any given procedure, regardless of the age of the patient; they have not been emphasized in this text. But the type and magnitude of operation to be utilized often are, or should be, quite different for a person of advanced years; and many other aspects of geriatric surgery require special consideration.

It is a well written informative book and should be very helpful to any surgeon operating on the aged.—*W.H.Z.*

QUESTIONS AND ANSWERS ON CONTACT LENS PRACTICE, by Jack Harstein. C. V. Mosby Company, St. Louis, 1968. 199 pages, illustrated. \$10.75.

As implied in the title of this excellent book, the material is presented throughout in the form of questions and answers. The author states in the preface that he feels essential information can best be provided in a concise and available manner through this method. He succeeds.

In the 27 chapters, he answers most questions likely to arise in the handling of the contact lens patient. Chapter 14 describes in detail his practical method of

fitting. Chapter 16 details the modification to correct unsatisfactory fit of lenses, and chapter 22 answers the questions which bring the contact lens wearer back into the office with discomfort. In chapter 23 the questions involving fluorescein patterns are adequately answered in two and a half pages.

Answers are concise, easily found, and practical. The book should be in the office of those who see contact lens patients.—*G.F.G.*

ELECTROCARDIOGRAPHY AND VECTORCARDIOGRAPHY, by E. Grey Dimond. (4th Edition), Little, Brown & Company, Boston, 1967. 168 pages, illustrated. \$7.50.

This is the fourth edition of a textbook first published in 1952 which has been the textbook for the course in electrocardiography given by the University of Kansas School of Medicine. The new edition is titled, *Electrocardiography and Vectorcardiography*. The author states the objective as follows: "To offer a small monograph which can provide totally uninitiated students or physicians with a reasonable understanding of spatial electrocardiography and vectorcardiography and which can make this understanding clinically useful to him." This objective is remarkably fulfilled.

The book is attractively printed in an easily read double-column format with numerous illustrative diagrams clearly labeled. Pertinent and succinct descriptions of electrocardiographic and vectorcardiographic entities are well presented.

This edition particularly reflects Dr. Dimond's skill in teaching, in combining quality illustrations, carefully worded descriptions, and good organization. The section on the exercise electrocardiogram and the sections on coronary artery disease are considered excellent by this reviewer.

(Continued on page 194)



DONALD A. KENDALL, M.D.

Dr. Donald A. Kendall, 65, Great Bend, died on February 6, 1969, at the Central Kansas Medical Center in Great Bend.

Dr. Kendall was born at Cottonwood Falls on November 23, 1903. He received his doctor of medicine degree from the University of Kansas School of Medicine in 1927. He began his medical practice in Great Bend, after completing his internship in Baltimore. In 1939, Dr. Kendall took postgraduate work in Vienna, Austria, and following the outbreak of World War II, he moved to Philadelphia where he resumed postgraduate training. He enlisted in the U. S. Army and served three years in the medical corps, returning after the war to resume his practice in Great Bend. Dr. Kendall held many offices in local and area medical associations and was instrumental in the planning and development of the Central Kansas Medical Center.

Survivors include his wife and four daughters. Memorial contributions may be made to the library fund, Central Kansas Medical Center, Great Bend.

JAMES M. MOTT, M.D.

Dr. James M. Mott, Topeka, died March 23, 1969, in a Topeka hospital. He was 76 years old.

Dr. Mott was born February 25, 1893, at Kansas City, Missouri. He received his medical degree from the University of Kansas School of Medicine in 1921. He began his medical practice in Tonganoxie in 1921 and moved to Lawrence five years later. He was a veteran of World Wars I and II. He entered the military reserves in 1924 and transferred to the National Guard in 1929. He was called to active duty in 1940 and sent to Alaska where he was commanding officer of a hospital in Anchorage. He retired as a full colonel in the National Guard in 1957, after 33 years of military service. In 1951, Dr. Mott became director of the division of preventable diseases of the Kansas State Board of Health, a position he held until his retirement in 1963. Since his retirement, he had been director of the Stormont Medical Library.

Surviving Dr. Mott are his wife, a son and a daughter. Memorial contributions may be made to the Stormont Medical Library, Stormont-Vail Hospital, Topeka.

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Disease Prevention & Control—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in January, 1969 and 1968

<i>Diseases</i>	<i>1969 January</i>	<i>1968 January</i>	<i>January, 5-Year Median, 1965-1969</i>
Amebiasis	—	2	1
Aseptic meningitis	—	—	—
Brucellosis	—	—	—
Diphtheria	—	—	—
Encephalitis, prim., infect.	1	—	—
Encephalitis, post-infect.	—	—	—
Gonorrhea	314	352	314
Hepatitis, infectious	27	26	26
Measles (Rubeola)	—	4	*
Meningococcal meningitis	2	8	2
Mumps	5	110	*
Pertussis	—	—	—
Poliomyelitis	—	—	—
Rheumatic fever	—	1	—
Rubella (German Measles)	4	29	*
Salmonellosis	15	16	15
Scarlet fever	6	11	11
Shigellosis	9	—	5
Streptococcal infections	255	399	381
Syphilis	122	83	88
Tinea capitis	5	6	5
Tuberculosis	11	19	14
Tularemia	—	1	1
Typhoid fever	—	—	—

* Statistics not available.

TYPHOID VACCINE

The incidence of typhoid fever in the United States has declined steadily for many years. At the present time, less than 500 cases are reported annually, and a continuing downward trend can be expected. Cases are sporadic and are primarily related to contact with carriers rather than to common source exposure. Recognizing this epidemiologic pattern of typhoid fever, re-definition of the role and use of typhoid vaccine is indicated.

Although typhoid vaccines have been employed for many decades, definitive evidence of their effectiveness has been accumulated only recently from well controlled field investigations. Several different preparations of typhoid vaccine have been shown to afford protection in approximately 70 to 90 per cent of individuals immunized, depending in part on the degree of their subsequent exposure.

Routine typhoid immunization is not recommended in the United States. Selective immunization is, however, indicated in the following situations: (1)

Intimate exposure to a known typhoid carrier as would occur with continued household contact; (2) Community or institutional outbreaks of typhoid fever; and (3) Foreign travel to areas where typhoid fever is endemic.

Although typhoid vaccine has been suggested for individuals attending summer camps and those in areas where flooding has occurred, there are no data to support the continuation of these practices.

On the basis of the field trials referred to, the following dosages are recommended, employing the vaccines available in the USA. In instances where there is insufficient time for the two doses to be administered at the time intervals specified, three doses of the same volume may be given at weekly intervals.

PRIMARY IMMUNIZATION

Adults and children over 10 years: 0.5 ml. subcutaneously on two occasions, separated by four or more weeks.

Children 6 months to 10 years: 0.25 ml. subcutaneously on two occasions, separated by four or more weeks.

BOOSTER IMMUNIZATION

Under conditions of continued or repeated exposure a booster dose should be given at least every three years. Even if an interval greater than three years has elapsed since the prior immunization, a single booster injection should be sufficient.

The following alternative routes and dosages of booster immunization can be expected to give comparable antibody responses; generally less reaction follows the intradermal route.

Adults and Children over 10 years: 0.5 ml. subcutaneously or 0.1 ml. intradermally.

Children 6 months to 10 years: 0.25 ml. subcutaneously or 0.1 ml. intradermally.

Paratyphoid A and B Vaccines

The effectiveness of paratyphoid A vaccine has never been established, and recent field trials have shown that available paratyphoid B vaccines were ineffective. In view of these data and recognizing that the paratyphoid A and B antigens when combined with typhoid vaccine may increase the occurrence of vaccine reactions, use of paratyphoid A and B vaccines is not recommended.—*PHS Advisory Committee on Immunization Practices, May 16, 1966.*

Blue Shield

(Continued from page 188)

to prepare and mail 1,000 letters to tell 1,000 people how and when they may enroll for Plan 65. Through television or newspaper advertisements 1,000 households may be reached with the same message for a cost of about \$2.50 to \$3.00.

As a final consideration, it is the Plan's contention that it is not contradictory for Blue Cross and Blue Shield to advertise if the advertisements support the organization's community-service purposes, increasing membership, etc. As an example, other nonprofit organizations advertise. The Lutheran Church uses both television and national magazines. The Knights of Columbus use national advertising, and the state of Kansas spends about \$100,000 in national business and trade publications for the purpose of promoting its economic growth which, in this instance, coincides with the Plan's goals.

Maybe these facts and philosophies won't answer all the questions you or John Public have about Blue Cross and Blue Shield advertising, but at least they'll

give you something to kick about the next time John's in your office. His next visit might be in the summer when the fishing isn't very good, and conversation topics are limited. Besides that, it'll give the Plan some free advertising.—*Prepared by the Staff of Kansas Blue Shield.*

Announcements

(Continued from page 189)

Medical School, 550 First Ave., New York, New York 10016.

May 1-3

Symposium on *Anxiety and Depression: Modern Interpretations*. Sponsored by Mound Park Hospital Foundation and the University of Florida College of Medicine, Tides Hotel and Bath Club, Redington Beach, Florida. Write: Postgraduate Medical Education, Mound Park Hospital Foundation, Inc., St. Petersburg, Florida 33701.

May 8-10

Postgraduate course in *Pediatrics*, Department of Pediatrics, University of Cincinnati. Write George Benzing, III, M.D., Children's Hospital, Cincinnati, Ohio 45229.

Book Reviews

(Continued from page 191)

Indexing seems accurate. A minor typographical error is noted on page 45. No attempt is made to provide either an atlas or encyclopedia of the subject.

It is somewhat difficult to review a book without prejudice when the author contributed importantly to the reviewer's education. With that reservation I commend this book as one which admirably fulfills its objective, and recommend it as a basic textbook in electrocardiography and vectorcardiography.—*E.W.C.*

Change of Address

Please notify the Kansas Medical Society of any changes in address.

Help keep the mailing list up to date

Welcome to Salina

The Saline County Medical Society is again pleased to serve as host for the annual meeting of the Kansas Medical Society.

It is a pleasure to welcome each of you to Salina, "The City on the Move," and we hope that your visit will be a pleasant and informative one. We assure you that the members of the Saline County Medical Society will do their utmost to assist the officers of the Kansas Medical Society in making this a memorable state medical meeting.

Carey A. Hartenbower, M.D., President

Saline County Medical Society

Exhibits

The exhibits, located in the Plymouth and Exeter Rooms, upper level, will be open Sunday, 1:00 p.m. to 5:30 p.m.; Monday, 7:30 a.m. to 5:30 p.m.; and Tuesday, 8:00 a.m. to 4:30 p.m. Register at the exhibit booths for drawings to be held at the Sports Dinner on Monday evening, and the President's Banquet on Tuesday evening.

*Booth
No.*

- COCA-COLA USA**
Skokie, Illinois
- 1 ZIMMER FRACTURE EQUIPMENT**
Topeka, Kansas
- 2 CENTRAL COMPUTING, INC.**
Wichita, Kansas
- 3 BRISTOL LABORATORIES**
Syracuse, New York
- 4 LEDERLE LABORATORIES**
Pearl River, New York
- 5 MERCK SHARP & DOHME**
West Point, Pennsylvania
- 6 C. RAY TYLER AGENCY, INC.**
Wichita, Kansas
- 7 MID-WEST SURGICAL SUPPLY COMPANY**
Wichita, Kansas
- 8 THE MEDICAL PROTECTIVE COMPANY**
Fort Wayne, Indiana
- 9 KANSAS BLUE CROSS-BLUE SHIELD**
Topeka, Kansas
- 10 E. R. SQUIBB & SONS**
New York, New York
- 11 MUNNS MEDICAL SUPPLY COMPANY, INC.**
Topeka, Kansas

*Booth
No.*

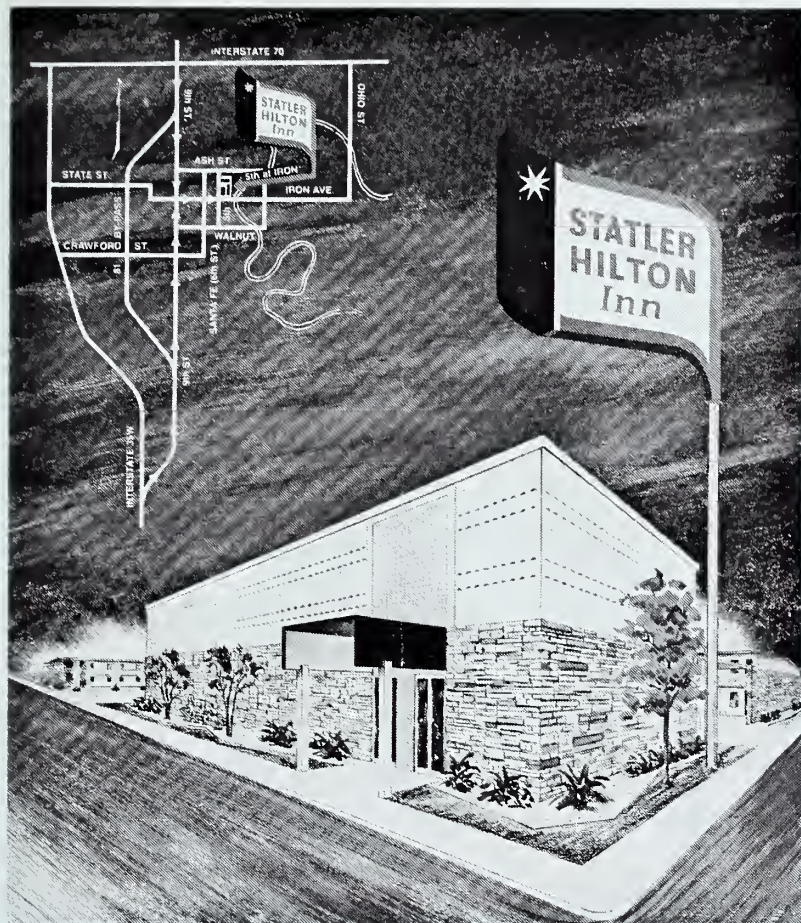
- 12 WASHINGTON NATIONAL INSURANCE COMPANY**
Evanston, Illinois
- 13 MODERN OFFICE METHODS, INC.**
Topeka, Kansas
- 14 PFIZER LABORATORIES**
New York, New York
- 15 CIBA PHARMACEUTICAL COMPANY**
Summit, New Jersey
- 16 THE UPJOHN COMPANY**
Kalamazoo, Michigan
- 17 GROUP PLANS AGENCY, INC.**
Kansas City, Missouri
- 18 SMITH, MILLER & PATCH, INC.**
New York, New York
- 19 WILLIAM H. RORER, INC.**
Fort Washington, Pennsylvania
- 20 DUFFENS OPTICAL COMPANY**
Topeka, Kansas
- 21 GREAT PLAINS LIFE INSURANCE COMPANY**
Wichita, Kansas
- 22 A. G. EDWARDS & SONS, INC.**
Salina, Kansas
- 23 BEAM'S SAFETY DIVISION**
Oklahoma City, Oklahoma

KaMPAC Kansas Allergy Society

The Kansas Medical Society is grateful for
the convention program grant received from

ELI LILLY & COMPANY
Indianapolis, Indiana

**A COFFEE LOUNGE WILL BE OPEN IN THE ASSEMBLY AREA
THROUGHOUT THE CONVENTION—Compliments of Berlin Wheeler, Inc.,
Topeka, and its affiliate, Midland Credit Management, Inc., Hutchinson and
Hays.**



KMS

Annual Session

May 4-7, 1969

Statler Hilton Inn
5th & Iron Streets
Salina

SUNDAY, MAY 4

3:00 p.m. *House of Delegates*

Evening *Social hour for delegates and wives—Saline County Society, hosts—Salina Country Club*

MONDAY, MAY 5

8:00 a.m. *Reference Committees*

10:30 a.m. *Sports Day*

6:00 p.m. *Social Hour—Buffet—"Highlights Review"—Salina Country Club*

TUESDAY, MAY 6

9:00 a.m. *Scientific Meetings*

2:00 p.m. *Scientific Meetings*

5:30 p.m. *Reception—KU Medical Alumni, hosts—Salina Country Club*

7:00 p.m. *President's Banquet—Salina Country Club*

WEDNESDAY, MAY 7

9:00 a.m. *House of Delegates
Council Meeting*



Salina Country Club

President's Banquet

KANSAS MEDICAL SOCIETY

Salina Country Club

Tuesday, May 6, 1969

Cocktail Hour at 5:30 sponsored by
the K.U. Medical Alumni Association

Dinner at 7:00 p.m.

Installation of new President

All physicians and wives are invited to attend.



Dining Room



Foyer

ENTERTAINMENT BY "THE PRN TEN"



Front Row, left to right: Howard W. Turtle, Dr. Louis H. Forman, John Sheridan.
2nd Row: Mrs. L. H. Forman, Mrs. Clyde Nichols, Mrs. Mark Dodge, Dr. Mark Dodge,
Mrs. R. M. Drisko.
3rd Row: Mrs. John Sheridan, Mr. Clyde Nichols, Dr. Robert M. Drisko, Mr. Charles J. Schmelzer.

The PRN Ten is a group composed of college professional musicians-physicians and Salina dropouts who have enjoyed music through the years. Traveling by Clyde's Greyhound Land-Cruiser, when it doesn't break down, the PRN Ten has appeared once before in Salina at the Pediatrics Benefit, has had several engagements with the Kansas City Conservatory of Music and also plays for the annual benefit for the swayback farms!

President's Banquet

7:00 p.m.

Tuesday, May 6, 1969

110th Annual Session

Speakers, General Sessions, Tuesday, May 6, 1969



MR. WHITLEY AUSTIN
Salina, Kansas

Graduate, Stanford University School of Medicine, 1945. Diplomate, American Board of Internal Medicine, 1953; Fellow, American Association for Advancement of Science, 1959; Fellow, American College of Physicians, 1962. Appointed Medical Director, Straub Medical Research Institute of Hawaii in 1963; Chairman, Department of Community Medicine, Straub Clinic, 1969. Professor of public health, Department of Community Medicine, School of Public Health, University of Hawaii; associate clinical professor of medicine, University of Hawaii School of Medicine, and chief of medicine, Queen's Medical Center, Honolulu.

Mr. Austin received his A.B. (English) from the University of Wisconsin in 1931. He was a reporter for the *Emporia Gazette* and *Hutchinson News*, and became editor of the *Salina Journal* in 1949. He was a member of the Kansas Board of Regents, 1958-1965 and served as chairman in 1961; trustee, Kansas Wesleyan University since 1966; and a member of the Saline County Health Facilities Planning Council.



FRED I. GILBERT, JR., M.D.
Honolulu, Hawaii



D. ROBERT HOWARD, M.D.
Durham, North Carolina

Graduate, University of Wisconsin School of Medicine, 1962. Internship, Madison General Hospital, 1962-1963. In private practice, 1963-1966; flight medical officer, U. S. Air Force, 1966-1968. He was appointed Program Director, Physician's Assistant Program, Duke University Medical Center, in 1968.



**JOHN L. S.
HOLLOMAN, JR., M.D.**
New York, New York

Graduate, Indiana University School of Medicine, 1950; internship, Milwaukee County General Hospital. Joined the Department of Health, Education, and Welfare as a medical consultant for Title XIX program in 1966. Appointed Chief, Medical Services Division, Bureau of Family Services, Welfare Administration, 1966; first Commissioner of Medical Services Administration, 1967. Member of the Board of Directors of the American Academy of General Practice for four years (president 1965-1966). Professor of clinical medicine, George Washington Medical School; a member of the Editorial Advisory Board of *GP Magazine*, and the *Journal of the Association of Medical Clinics*.

Photograph
Not
Available

JOHN G. SMILLIE, M.D.
San Francisco, California

Graduate, University of Michigan School of Medicine, 1943. Internship and residency in internal medicine, Harlem Hospital; post-graduate fellow in internal medicine, Cornell-Bellevue Hospital, New York City, 1943-1948. He has served as President, National Medical Association; National Chairman, Medical Committee for Human Rights; member, Advisory Board, Student American Medical Association and Associated Medical Schools of Metropolitan New York; Board of Trustees, State University of New York. Consultant to the National Institutes of Health, Bureau of Health Services and Bureau of Hearing Appeals of the Department of Health, Education and Welfare.



FRANCIS L. LAND, M.D.
Washington, D. C.

Graduate, University of Southern California School of Medicine, 1943. Internship and residency in pediatrics, Los Angeles County Hospital, 1943-1948. Chief, Department of Pediatrics, Permanente Medical Group and Kaiser Foundation Hospital, San Francisco, 1954-1961; Assistant Physician-in-Chief, Permanente Medical Group and Assistant Chief-of-Staff, Kaiser Foundation Hospital, 1957-1961. Appointed Physician-in-Chief, Permanente Medical Group and Chief-of-Staff, Kaiser Foundation Hospital, in 1961. Served as consultant to the Prince Albert Medical Group, Prince Albert, Saskatchewan; the Neighborhood Medical Center, Bronx, New York; and the Group Health Association of America, Railroad Study. Presently a consultant to the American Health Education for African Development, Inc., organization of Group Practice in Freetown, Sierra Leone.

Hosts for the Meeting

Salina Physicians Arranging 1969 Session

GENERAL CHAIRMAN—JOHN C. MITCHELL, M.D.

PROGRAM COMMITTEE

James C. Dowell, M.D., and Wendell K. Nickell, M.D., Co-Chairmen

SPORTS DAY COMMITTEE

Donald L. Marchbanks, M.D., Chairman, Golfing and Bowling
Lloyd W. Hatton, M.D., Chairman, Shooting

VISIT THE EXHIBITS—REGISTER FOR DRAWINGS

**A COFFEE LOUNGE WILL BE OPEN IN THE ASSEMBLY AREA
THROUGHOUT THE CONVENTION**

Sunday Afternoon, May 4, 1969

12:00 KANSAS RADIOLOGICAL SOCIETY

Downstairs Room of Restaurant,
Ramada Inn

*Robert C. Lawson, M.D.
Topeka, President*

HOUSE OF DELEGATES

Dover and Portsmouth Rooms, Upper Level,
Statler Hilton Inn

*Thomas F. Taylor, M.D.
Salina, Speaker
Clair C. Conard, M.D.
Dodge City, Vice Speaker*

1:30 REGISTRATION—TICKETS—INFORMATION

Main Lobby, Upper Level, Statler Hil-
ton Inn

2:15 REGISTRATION OF DELEGATES

3:00 FIRST SESSION

*The Saline County Medical Society will host a social hour for delegates and
wives at the Salina Country Club. One courtesy libation per person. A limited
dinner menu for your pleasure. Music for your listening and dancing enjoyment.*

TELEPHONE NUMBER **913 TA 7-7093**

Monday, May 5, 1969

Statler Hilton Inn

7:30 REGISTRATION—TICKETS—INFORMATION
Main Lobby, Upper Level

8:00 REFERENCE COMMITTEE A
Portsmouth Room, Upper Level
REFERENCE COMMITTEE B
Dover Room, Upper Level

VISIT THE EXHIBITS—REGISTER FOR DRAWINGS

A COFFEE LOUNGE WILL BE OPEN IN THE ASSEMBLY AREA
THROUGHOUT THE CONVENTION

SPORTS DAY

KANSAS MEDICAL SOCIETY GOLF, SKEET AND TRAP ASSOCIATION

Donald L. Marchbanks, M.D., Salina, President

- 10:30 GOLFING—Salina Country Club (East Iron Street; turn left at Marymount College)
- 1:00 SHOOTING—Salina Gun Club (West on Crawford Street to Burma Road; turn left and south 1¼ miles)
- 2:30 BOWLING—All-State Bowling Lanes (West side of 81 Bypass south of Holiday Inn)
- 6:00 RECEPTION—BUFFET DINNER—“HIGHLIGHTS REVIEW”
Salina Country Club
(A table will be reserved at the dinner for the Kansas Flying Physicians)

A drawing for a \$50 gift certificate from the Pro Shop, Salina Country Club, will be held at the dinner. You must be present to win!

TELEPHONE NUMBER 913 TA 7-7093

Dover and Portsmouth Rooms

MORNING

7:30 REGISTRATION—TICKETS—INFORMATION

Main Lobby, Upper Level

7:30 PAST PRESIDENTS' BREAKFAST

President's Suite

FUTURE MEDICAL TRENDS—PROBLEMS AND PHILOSOPHIES

John C. Mitchell, M.D., Salina, presiding

FIRST GENERAL SESSION

9:00 WELCOME

Cary A. Hartenbower, M.D.

President

Saline County Medical Society

9:05 THE REORGANIZATION OF MEDICAL PRACTICE AND ITS INFLUENCE ON PATIENT-
PHYSICIAN RELATIONSHIP

Fred I. Gilbert, Jr., M.D.

Straub Medical Clinic

Honolulu, Hawaii

The practice of medicine in response to external and internal pressures has undergone considerable organizational change over the past decade. The rate of change continues to accelerate. The shifting roles and responsibilities of the many people involved in patient care has drastically changed from the more direct one-to-one patient-physician relationship of the past. This new and changing relationship poses many questions, some of which are being answered.

9:50 MEDICAL PROBLEMS OF THE INNER CITY—
PRESENT AND FUTURE

John L. S. Holloman, Jr., M.D.

New York, New York

10:35 INTERMISSION TO VIEW EXHIBITS

VISIT THE EXHIBITS
REGISTER FOR DRAWINGS

A COFFEE LOUNGE WILL BE OPEN IN
THE ASSEMBLY AREA THROUGHOUT THE
CONVENTION

TELEPHONE NUMBER

SECOND GENERAL SESSION

10:50 EXPERIENCE WITH A COMPREHENSIVE PRE-
PAID MEDICAL PLAN AND ITS IMPLICA-
TION FOR FUTURE MEDICAL PRACTICE

John J. Smillie, M.D.

*Permanente Medical Group
San Francisco, California*

With dramatic breakthroughs in medical research and scientific medical advances in centers, there have developed gross inequalities in the availability and quality of medical care. At the same time, the cost of medical and hospital services have increased more rapidly than have the costs of other goods and services in the United States. There is widespread unrest in the public mind about the distribution of medical care and its high costs, particularly from governments and from labor unions who purchase medical care.

One suggestion for improvement has been the encouragement of prepaid group practice programs. The author has been associated with Permanente Medical Group—Kaiser Foundation Health Plan for over 20 years as a practicing pediatrician, as well as other responsibilities. A description of the benefits to the subscriber and his dependents will be presented, with cost figures. In addition, the integration of the following seven principles of multi-specialist group practice, prepayment, coordinated facilities, reversal of the usual economics of medical care, dual choice, financial self-sufficiency, and involvement of physicians in management decisions will be described.

11:35 THE ROLE OF GOVERNMENT IN FUTURE
MEDICAL PRACTICE

Francis Land, M.D.

Department of Health,

Education and Welfare

Washington, D. C.

913 TA 7-7093

May 6, 1969

Statler Hilton Inn

NOON

(OPEN PERIOD—NO GENERAL LUNCHEON)

SPECIALTY SOCIETIES—LUNCHEONS AND BUSINESS MEETINGS

- 12:30 ENT SECTION

Bridge Nook, Holiday Inn Restaurant

Joseph A. Budetti, M.D.

Wichita, President
- 12:00 KANSAS SOCIETY OF ANESTHESIOLOGISTS

East Dining Room Entrance, Holiday Inn Restaurant

M. Robert Knapp, M.D.

Wichita, President
- 12:15 KANSAS ALLERGY SOCIETY

Rooms 102-104, Statler Hilton Inn

Vernon C. Wiksten, M.D.

Topeka, President
- 12:15 KANSAS CORONERS ASSOCIATION

West Dining Room, Holiday Inn Restaurant

Cyril V. Black, M.D., Pratt, President
- 12:15 KANSAS OBSTETRICAL SOCIETY

East Meeting Room, Holiday Inn Motel

David E. Gray, M.D., Topeka, President

AFTERNOON

Laurence S. Nelson, M.D., Salina, presiding

THIRD GENERAL SESSION

- 2:00 THE FUTURE OF MEDICAL CARE: HOW WILL IT BE AFFECTED BY THE PUBLIC'S DEMANDS AND REACTIONS?

Mr. Whitley Austin, Editor

Salina Journal

Salina, Kansas

- 2:45 THE PHYSICIAN ASSISTANT: ONE APPROACH TO THE MEDICAL MANPOWER PROBLEM

Robert Howard, M.D.

Duke University

Durham, North Carolina

3:30 INTERMISSION TO VIEW EXHIBITS

FOURTH GENERAL SESSION

- 3:45 PANEL DISCUSSION

Thomas P. Butcher, M.D.

Emporia, moderator
- PANELISTS:

Fred I. Gilbert, Jr., M.D.

John L. S. Holloman, Jr., M.D.

John J. Smillie, M.D.

Francis Land, M.D.

Mr. Whitley Austin

Robert Howard, M.D.

VISIT THE EXHIBITS—REGISTER FOR DRAWINGS

A COFFEE LOUNGE WILL BE OPEN IN THE ASSEMBLY AREA
THROUGHOUT THE CONVENTION

TELEPHONE NUMBER 913 TA 7-7093

Tuesday, May 6, 1969

Salina County Club

EVENING

ANNUAL PRESIDENT'S BANQUET—KANSAS MEDICAL SOCIETY

5:30 RECEPTION FOR PHYSICIANS AND WIVES
Sponsored by K. U. Medical Alumni Association

7:00 DINNER
John L. Morgan, M.D., Emporia, presiding

INVOCATION

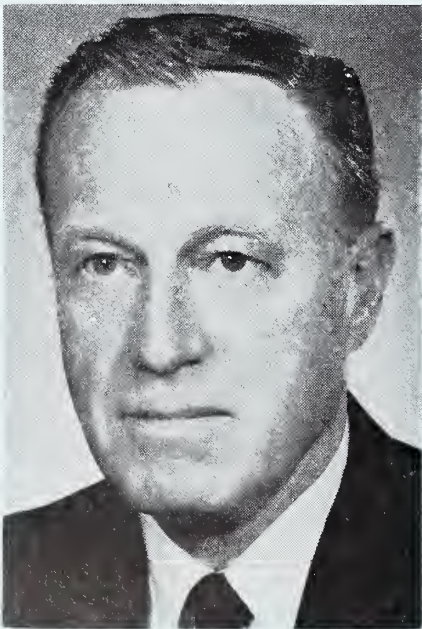
INTRODUCTION OF GUESTS

OATH OF OFFICE TO INCOMING PRESIDENT

"THE PRN TEN"

Two Sony AM-FM radios will be given away at the banquet. You must be present to win!

President and President-Elect



JOHN L. MORGAN, M.D.
President
Emporia, Kansas



LELAND SPEER, M.D.
President-Elect
Kansas City, Kansas

Wednesday, May 7, 1969

Statler Hilton Inn

8:00 REGISTRATION—INFORMATION
Main Lobby, Upper Level

9:00 HOUSE OF DELEGATES—SECOND SESSION
Dover and Portsmouth Rooms, Upper Level

COUNCIL LUNCHEON AND MEETING AT CONCLUSION OF HOUSE OF DELEGATES
Plymouth Room



Visit the Exhibits!

Register for Drawings!

Plymouth and Exeter Rooms, Upper Level

Hours

Sunday, May 4—1:00 p.m.-5:30 p.m.

Monday, May 5—7:30 a.m.-5:30 p.m.

Tuesday, May 6—8:00 a.m.-4:30 p.m.

A \$50 gift certificate from the Pro Shop, Salina Country Club will be given away at the Sports Dinner on Monday evening, May 5.

Two Sony AM-FM Radios will be given to the lucky winners at the President's Banquet on Tuesday evening, May 6.

YOU MUST BE PRESENT TO WIN!

Woman's Auxiliary to the Kansas Medical Society

May 4-7, 1969, Ramada Inn

Sunday, May 4

3:00 HOSPITALITY ROOM
Room 332

Monday, May 5

8:30 REGISTRATION
Room 333
HOSPITALITY ROOM
Room 332

10:00 PAST PRESIDENTS' COFFEE
Executive Suite, Room 311

12:30 LUNCHEON—HONORING STATE OFFICERS
Banquet Room, Downstairs
Mrs. Kermit Wedel, President
Saline County Auxiliary, presiding

2:00 PRE-CONVENTION BOARD MEETING
Small Banquet Room, Downstairs

6:00 SOCIAL HOUR AND DINNER—"HIGHLIGHTS
REVIEW"—KMS SPORTS ASSOCIATION
Salina Country Club

Tuesday, May 6

8:00 REGISTRATION
Room 333

8:00 CONTINENTAL BREAKFAST
Ballroom, Marymount College

9:00 GENERAL SESSION
Marymount College

1:00 LUNCHEON—Salina Country Club
Honoring Mrs. G. Prentiss Lee, First
Vice President, Woman's Auxiliary to
AMA, and John L. Morgan, M.D. and
KMS Advisory Committee on Aux-
iliary

Mrs. O. L. Hanson
State President, presiding

5:30 K.U. MEDICAL ALUMNI RECEPTION
Salina Country Club

7:00 PRESIDENT'S BANQUET—KANSAS MEDICAL
SOCIETY
Salina Country Club

Wednesday, May 7

8:30 REGISTRATION—HOSPITALITY ROOM
Room 333

9:30 POST-CONVENTION BOARD MEETING
Small Banquet Room, Downstairs
Mrs. Larry E. VinZant, presiding

Kansas Medical Assistants Society

May 2-4, 1969, Statler Hilton Inn

"COUNTY FAIR"

Friday Evening, May 2

- 6:00 PAST PRESIDENTS' MEETING—President's Suite
Dorothy Gunn, Great Bend, presiding
- 7:00 REGISTRATION—Assembly Area
- 8:30 "OPENING NIGHT"—Dover Room
—*Courtesy Munns Medical Supply Company, Inc.*

Saturday, May 3

- 7:00 EXECUTIVE BOARD MEETING—President's Suite
- 7:30 REGISTRATION—Assembly Area
- 8:30 COFFEE—Plymouth Room
—*Courtesy Mid-West Surgical Supply, Inc.*
- 9:30 CALL TO ORDER—Dover Room
Freida Pierson, Oakley, President
Kansas Medical Assistants Society
- INVOCATION AND CREED
Gertrude Suenram, Wichita
President-Elect
Kansas Medical Assistants Society
- 9:40 WELCOME
Carey A. Hartenbower, M.D.
President
Saline County Medical Society
- 9:45 RESPONSE
John L. Morgan, M.D., President
Kansas Medical Society
- 9:55 HOUSE OF DELEGATES
Maxine Williams, Kansas City
presiding
Speaker of the House
- 12:30 PRESIDENTS' LUNCHEON—Plymouth Room
- 1:30 HOUSE OF DELEGATES RECONVENES
- 2:00 COMPREHENSIVE HEALTH PLANNING
Thomas F. Taylor, M.D., Salina
- 2:45 CURRENT CONSIDERATION IN EPIDEMIOLOGY OF HEART DISEASE
Delmas Jackson, M.D., Salina
- 3:30 EFFECTIVE COMMITTEE ACTIVITY AND COMMUNICATIONS
Elvera M. Fischer, Chicago
Past President AAMA and 1969
Parliamentarian AAMA

7:00 BANQUET—Dover Room

- INVOCATION— *Maxine Williams*
- PARADE OF COUNTY QUEENS
- GREETINGS
James J. Marchbanks, M.D., Oakley
Chairman, KMAS Board of Advisors
- RESPONSE AND INTRODUCTIONS
Freida Pierson, President
- PRESENTATION OF CHARTER TO RILEY COUNTY MEDICAL ASSISTANTS SOCIETY
Freida Pierson
- INSTALLATION OF OFFICERS
Dorothy Gunn, Great Bend
Past President
Kansas Medical Assistants Society
- "A NIGHT AT THE FAIR"
ORGANIST— *Bob Pcednik*

Sunday, May 4

- 8:00 COFFEE—Portsmouth Room
—*Courtesy Mid-West Surgical Supply, Inc.*
- 9:30 CALL TO ORDER AND ANNOUNCEMENTS—Elks Club
Freida Pierson, President
- INVOCATION— *Agnes Agin, Salina*
Second Vice President
- 9:40 GREETINGS— *Marge Smith, President*
Saline County Medical Assistants Society
- 9:45 PEDIATRICS OF TODAY
Richard Dreher, M.D.
Kansas City, Missouri
- 10:30 ORTHOPEDIC CONDITIONS AMONG THE VIETNAMESE
Robert S. Feighny, M.D., Salina
- 12:30 LUNCHEON—Elks Club
- INVOCATION— *Darlene Redmon, Quinter*
First Vice President
- SPEAKER— *Rev. Bernard Hawley, Salina*
Pastor, First Presbyterian Church
- PRESENTATION OF GAVEL—*Freida Pierson*
- ACCEPTANCE—*Gertrude Suenram*

Kansas Society of Medical Technologists

Kansas Society of Pathologists

May 8-9, 1969, Holiday Inn, Salina

Thursday, May 8

George E. Fritz, M.D., Presiding

8:00 REGISTRATION

9:00 OPENING OF CONVENTION

INVOCATION

WELCOME TO SALINA

GREETINGS

George E. Fritz, M.D.
President of KSP, Wichita
John P. Smith, M.T. (ASCP)
President of KSMT, Wichita

9:15 AUTOMATION, CENTRALIZATION, SPECIALIZATION AND MEDICAL TECHNOLOGY TOMORROW

George Z. Williams, M.D.
National Institute of Health
Bethesda, Maryland

10:00 COFFEE—VIEW EXHIBITS

10:30 MANAGEMENT BY OBJECTIVES

Roma Brown, M. T. (ASCP)
President-elect, American Society
of Medical Technologists, Omaha

11:15 FUTURE OF MEDICAL TECHNOLOGY AND THE CLINICAL LABORATORY

George Z. Williams, M.D.
Roma Brown, M.T. (ASCP)
Leo P. Cawley, M.D.
John P. Smith, M.T. (ASCP)

12:00 LUNCHEON

Merle Swanson, M.T. (ASCP)
presiding

1:15 LABORATORY DETECTION OF QUALITATIVE FIBRINOGEN ABNORMALITIES

Helen E. Heath, A.B., M.T. (ASCP)
University of Kansas Medical Center

1:45 COLLECTION OF SPECIMENS

Robert H. Kelly, M.D.
St. Joseph's Hospital & Rehabilitation
Center, Wichita

2:15 IMMUNOHEMATOLOGY

Leo P. Cawley, M.D.
Wesley Medical Center, Wichita

3:15 HOW LICENSURE AFFECTS YOU AND YOUR LABORATORY

Nicholas Duffett, Ph.D.
Kansas State Dept. of Health, Topeka
Doris Brown, M.T. (ASCP), LL.B.
University of Kansas Medical Center

6:30 SOCIAL HOUR—BANQUET

SAILING CRUISES IN THE CARRIBEAN AND THE CHESAPEAKE

George Z. Williams, M.D.

Friday, May 9

Gerald Palmer, M.D., Presiding

8:00 REGISTRATION

9:00 THE SIGNIFICANCE OF THE LABORATORY EXAMINATION OF CEREBROSPINAL FLUID

Harry White, M.D.
University of Kansas Medical Center

9:30 HOMICIDE INVESTIGATION

William Eckert, M.D.
St. Francis Hospital, Wichita

10:00 COFFEE—VIEW EXHIBITS

10:30 CHANGING PATTERNS OF INFECTIOUS DISEASES

Randolph Chase, M.D.
New York University Medical Center
New York City

11:15 THE CLINICIAN LOOKS AT THE MICROBIOLOGY LABORATORY

Randolph Chase, M.D.
Harry White, M.D.
Kathryn Rodecker, M.T. (ASCP)

Robert Weber, M.D., Salina
moderator

12:00 LUNCHEON

Medical Technology Students

1:15 BUSINESS MEETINGS—STUDENT SEMINAR

Councilor Reports

Activities in the Councilor Districts of Kansas

DISTRICT 2

The following is a résumé of the activities of the Wyandotte County Medical Society (Councilor District 2) for the past year.

The society endorsed and made recommendations for the application for planning funds in the Model Cities Program from the city of Kansas City, Kansas. This application was subsequently approved by the federal government and they are in the planning stage now.

The society participated in the 1968 Medical Disaster Test Alert (MO-KAN II) for the Greater Kansas City area.

The society endorsed the proposal made by the local chapter of SAMA for a Kansas City Student Community Health Program. A request was made by this group for a grant of \$39,000 for operational funds from the AMA. The request was granted and the president of the Wyandotte County Medical Society was quite active as an advisor for this program.

A report was received from Dr. Brose of the University of Kansas Medical Center regarding the emergency medical care services in and around Wyandotte County. This report was based on a survey which was conducted by Dr. Brose and Dr. Youmans.

A memorial portrait photograph of Dr. William P. Williamson, past president of the society, was purchased and presented to the Department of Neurosurgery of the K. U. Medical Center.

We were honored to have Dr. John L. Morgan, president of the Kansas Medical Society, and Dr. Lucien R. Pyle as guest speakers for the society meeting held on November 19, 1968.

The Board of Directors of WCMS were polled for their opinion regarding the purchase of a building by the state Society and their unanimous opinion of approval was passed on to Dr. C. L. Francisco, our alternate councilor, for his guidance.

JAMES G. LEE, JR. M.D., *Councilor*

DISTRICT 3

The affairs of the third councilor district in the past year have been fairly well in order. The councilor or his alternate has attended all meetings of the Council and has attempted to inform the mem-

bership. Several requests have come from the State Selective Service as to the essentiality of physicians in the area. General practitioners and many specialists are in exceedingly short supply in this area, with its burgeoning population. A few physicians have ceased practice.

A successful council district meeting was held November 18 with Dr. Morgan, Dr. Pyle and Mr. Ebel present. All of the members of the third councilor district enjoyed meeting our state representatives and getting things straight from the horse's mouth.

It has been a great pleasure to serve the third councilor district for the past six years and I appreciate the great spirit of cooperation evidenced by all members.

DAN L. BERGER, M.D., *Councilor*

DISTRICT 4

The fourth councilor district meeting was held October 24, 1968, at the Besse Hotel in Pittsburg, with 60 in attendance, these being doctors and their wives.

There was a social hour before dinner, after which there were remarks by Mrs. O. L. Hanson, Topeka, president of the Woman's Auxiliary to the Kansas Medical Society, and reports by Dr. John L. Morgan, Emporia, president of the Kansas Medical Society, and Dr. Lucien R. Pyle, Topeka, Medical Coordinator for Title XIX. This was a very enlightening and constructive meeting.

The district continues to be in dire need of several more physicians. This shortage is acute to many of our localities. Your councilor has attended several meetings of the Council and Commission on Health Services of the Kansas Medical Society, and he feels that the work of the Council and the Commission is progressing satisfactorily.

W. G. RINEHART, M.D., *Councilor*

DISTRICT 5

This is my concluding report from District 5 as my second councilor term ends. These six years have seen unbelievable changes in the relationship between practicing physicians and patients with regard to third-party fee payees.

I extend deepest appreciation to the fine doctors of District 5 who have made my tenure a pleasant experience. Their broad knowledge of practical economics and applied politics are a marvel of extra-curricular assimilation. They attended the first councilor dinner held in the state for 1968 at Manhattan last October; a meeting on Comprehensive Health Planning in January, 1969, and supported KaMPAC in an exemplary fashion.

In finishing my term, I would plead with all the doctors of Kansas, fine men that they are, to get involved in and support their local and state medical societies; exert their considerable influence for good and fiscally responsible government; continue their good public relations, and maintain their good rapport with patients. In the pursuit of these honorable goals, we should enlist support and urge patient communication to legislators or congressional delegates in our interests. If we have helped these patients, isn't it gratifying to them to help us? This is no time for stubborn stoicism, idiotic individualism, or complacent contentment. Better to have continuing concern, constructive cooperation, and courageous confidence. What we lack in numbers must be offset by carefully applied intellect and honestly conceived alliances with individuals and organizations similarly oriented.

We must encourage the production of practicing physicians—men who can disseminate the marvels of the medical centers to the people, and not try to bring all the population to the medical centers. The people are concerned over the lack of physicians in Kansas. What do they want? More doctors pretty much like those they already have in their communities. If this need can be met, the rapid federalization of medicine will decelerate, possibly cease, and perhaps atrophy.

My best wishes to my successor. And may Apollo, Aesculapius, Hygeia, Panacea, and all the lesser gods and goddesses smile on you, my colleagues.

ALEX SCOTT, M.D., *Councilor*

DISTRICT 7

Our councilor district meeting in November was well attended. Dr. J. L. Morgan, president of the Kansas Medical Society, related some of the activities of the Executive Committee and the purposes and aims of the Society as a whole. Mr. Oliver Ebel was available to answer questions. Dr. Lucien Pyle discussed relationships with Welfare and Title XIX.

Mrs. Betty Hanson, president of the Woman's Auxiliary to the Kansas Medical Society, spoke to the Flint Hills Medical Society Auxiliary.

One new physician has set up practice in this area. We have not lost any physicians during the year.

RICHARD F. CONARD, M.D., *Councilor*

DISTRICT 8

The component societies of the eighth district (Butler, Chautauqua, Cowley, Elk and Greenwood) have presented no special problems to your councilor this year.

The society meetings in Butler and Cowley counties have been well attended, as have the circuit courses held in Winfield.

The district eight meeting was held in Arkansas City, October 17, with a good attendance. We were honored by the presence of our President, Dr. John L. Morgan; Dr. and Mrs. Lucien Pyle; Mrs. Betty Hanson, president, and Mrs. Gene VinZant, president-elect, of the Woman's Auxiliary to the Kansas Medical Society; and Mr. Oliver Ebel. Dr. Morgan and Mr. Ebel gave the members of the district a very lucid summary of the current policies and problems of the Kansas Medical Society. Dr. Pyle then reported on the Welfare and Title XIX problems which are arising and being handled in a very commendable manner.

A committee to study comprehensive health planning has been appointed by the Cowley County Society, with representatives from the Butler, Elk and Chautauqua county societies participating. This committee has held two meetings and will meet again in the near future.

A Blue Shield Relations Committee meeting was held in Arkansas City with representatives from Butler and Chautauqua counties present. Discussion centered on the prevailing charge plan, medicare, medicaid, and utilization.

We are becoming increasingly aware of the need for medical manpower in Elk County and in Arkansas City in Cowley County. The need for general practitioners in these locations is becoming critical.

I have enjoyed serving this councilor district.

BRUCE G. SMITH M.D., *Councilor*

DISTRICT 9

The ninth councilor district has had no unusual problems or events during the past year, except for the annual dinner at which the state president, Dr. J. L. Morgan, addressed the members on the activities and aims of the Kansas Medical Society.

S. C. McCRAE, M.D., *Councilor*

DISTRICT 10

To the members of the Kansas Medical Society in District 10, which is composed of Harvey, Marion, McPherson, Reno, and Rice counties, this has been an active year.

A councilor district meeting was held in McPherson at the Warren Hotel, on November 14, 1968. Notices were sent to 136 members in the district. It was a rainy evening and only 19 attended to hear Dr. John L. Morgan, president of the Kansas Medical Society; Dr. Lucien Pyle, AMA Delegate, and Swede Swenson discuss some of the business of the Society.

The Council has met several times the past year and there has been much business discussed. Probably the purchase of an office building at 13th and Topeka Avenue, Topeka, for \$120,000 will affect you the most, and in order to pay for it you have an extra \$50 added to your dues for 1969. Your treasurer, Dr. Chester M. Lessenden, has asked that you send in the \$50 as soon as you can to avoid the 7¼ per cent interest on as much of the loan as possible; the loan that was necessary to obtain the building from the Motor Carriers Association.

Anytime you happen to be in Topeka, stop in to see what you have bought.

The societies of this district have had good attendance and regular meetings.

The legislative session has had several bills introduced that affect medicine. The one that has elicited most interest has been the Revised Criminal Code that included the legalization of abortion by regularly licensed physicians, performed in approved hospitals and according to AMA ethics.

Your annual meeting will be at the Statler Hilton Hotel, 5th and Iron Streets, Salina, on May 4-7, 1969. Plan to attend.

R. R. MELTON, M.D., *Councilor*

DISTRICT 11

The year 1968 was an extremely busy one in the 11th district. A wide diversity of projects was accomplished and many projects are in the process of being accomplished.

Membership in the district continues to grow slowly and, at the present time, we have a membership total of 385. We have attempted to continue to keep our membership informed about the various programs in which the district is involved.

We have been active in the local Comprehensive Health Planning Program. District members have been appointed to the appropriate committees.

Through them, we are kept informed as to the course of events.

As in the past, the Immediate Care of the Sick and Injured Course for paramedical personnel was a tremendous success. The handbook which is utilized in the course has received widespread, favorable publicity, and copies of it have been reprinted and sent to some 25 different states and two foreign countries to act as models for similar courses.

An unusual, but fruitful, gathering has been initiated in this district, in that quarterly meetings with the MSSC board of directors and hospital administrators of the city have been initiated by the medical society. Out of these discussions has come better understanding of those problems which each of us has.

A serious dilemma in which this district finds itself is the use to which the Sedgwick County Hospital will be put in the future. Much talk concerning the facility as an area for extended care has gone on and, at the present time, no specific answer as to the fate of the hospital has come about.

The Physicians-Hospital Relations Committee was consulted in regard to any recommendations they might make to the hospital medical staffs concerning questions of the continuity of staff officers. The suggestion of the committee that there be longer continuity in office for staff officers, section chiefs and committee chairmen has been studied and adopted in one hospital.

During the year the medical society library was transferred from its home at the Sedgwick County Hospital to its new location at Wichita State University.

The district was pleased to have Dr. William J. Reals, former councilor, elected to the position of second vice president of the Kansas Medical Society.

During 1967, the MSSC placed copies of *Today's Health Guide* in all of the junior and senior high schools in the county. In 1968, the job was completed by the placing of 25 more copies in the elementary schools of the city.

The district also participated in the "Careers Day" which is sponsored by the local chamber of commerce.

We also participated with the Woman's Auxiliary in sponsoring a workshop for all the counselors in the junior and senior high schools in regard to medical careers.

A study has been initiated in this district in regard to emergency medical services within the city. The study is being done from a strictly medical standpoint and is, as yet, incomplete.

Blue Shield initiated a model program in the district in regard to payment for outpatient services. This study determined feasibility of payment for such services outside the hospital. The study was completed in September and it is undergoing statistical analysis at the present time. Upon the statisticians' findings may rest a revolution in Blue Cross Plan coverage.

We have also initiated a study into the reorganization of our disaster communications system and we have revamped our over-all communications procedures for a disaster. We also assisted in updating and reorganizing the over-all Disaster Committee.

The district is deeply involved in the local Model Cities Program. The society's executive director is on the three-man team which is involved in writing the health component of the local program.

M. ROBERT KNAPP, M.D., *Councilor*

DISTRICT 12

The 12th district has been quiet this year, with very little to report. There was a remarkable lack of interest in the purchase of the new KMS building and the only comments obtained were by those persons I went to talk to personally—no one else volunteered. Two letters were sent to all the doctors in the district during the year, to keep them informed of the activities of the Kansas Medical Society.

It should be noted that the Pratt-Kingman Society was very active in KaMPAC, having the greatest percentage of any state component as members.

We have had no problems with the physician's draft this year and there have been few relocations. Almost all areas are in need of more physicians.

F. P. WOLFF, M.D., *Councilor*

DISTRICT 13

The 13th councilor district has had no major problems this past year. The district councilor meeting was postponed due to inclement weather, and was rescheduled for March. Your councilor attended the state Society meeting, House of Delegates, and all Council meetings in the past year.

The chief problem this councilor district has been experiencing continues to be the loss of physicians in the smaller communities, and the inability to obtain the necessary replacements. This problem has been receiving attention by the various interested groups in the area, including the newly formed Regional Health Planning Committee. The next

Central Kansas Medical Society meeting will discuss area planning and the manpower shortage.

EUGENE T. SILER, M.D., *Councilor*

DISTRICT 14

District 14 was visited by President Morgan, Mrs. Betty Hanson, and Dr. Lucien Pyle to an attendance of 70 doctors and auxiliary members. Dr. Morgan presented, in his usual impressive manner, his views concerning changes which are due medicine-wise in 1969. Dr. Pyle, with his usual tact and finesse, re-explained changes and application of the "Medies," which could make them more palatable. Mrs. Hanson spoke briefly about Medical Auxiliary growth, increased interest of its members and effectiveness in the aids to medicine which doctors need, but themselves are not in position to perform.

District 14 has participated, in a fashion, in some of the concepts advocated in education through assistance of RMP in training and re-training members, mental health, speech therapy, the establishment of intensive care unit, use of the scanogram in diagnosis, etc. Dr. Brown, director of RMP, and Dr. Lauren Welch, local representative, have been stimulating and helpful in this respect. Wednesday early morning meetings, preplanned, and with KU Medical School faculty, out-of-state speakers, and local physicians conducting the meetings, and with attendance of approximately 30 members are now an established practice.

A sad note, the passing of Dr. Don Kendall, who truly represented the best in medicine, has been a loss to District 14. A memorial library has been established in his honor.

MARVIN O. STEFFEN, M.D., *Councilor*

DISTRICT 15

This district not only had the privilege of entertaining our state President and Mrs. Morgan on October 29, 1968, at the annual meeting held in Dodge City, but also the pleasure of extending to Dr. Morgan a happy birthday. We were glad to welcome Dr. and Mrs. Lucien Pyle; Mrs. O. L. Hanson, president of the Women's Auxiliary and Mrs. L. E. VinZant, president-elect. It was pointed out that while this district is one of the farthest from Topeka, in the matter of miles, we have many representatives active in the state Society.

Probably the outstanding event of the year has been the acquisition of a renal dialysis unit located at Trinity Hospital in Dodge City. This was acquired with the help of St. Luke's Hospital in Kansas City,

Missouri, and represents one of two such units between Kansas City and Denver. This, along with the cobalt therapy unit in Liberal, represents substantial achievements for this area. A very active Mental Health Center has been started in Greensburg this year.

As a whole this district is fairly well supplied with physicians. The chronic lack of both generalists and specialists in Liberal remains and is somewhat difficult to explain since it does represent an excellent location for practice.

Unfortunate news coverage of the Booz, Allen & Hamilton report was very disturbing to this area and brought many protests until explained. The results of new regional health planning councils are still in the future and are certain to raise more problems when underway.

R. H. HILL, M.D., *Councilor*

DISTRICT 16

Councilor District 16 includes the ten northwest counties of Kansas. A district dinner meeting was held in Oakley on the evening of October 27, 1968, for the members and their wives. Our special guests for this meeting were Dr. John L. Morgan, president of the Kansas Medical Society, and Mrs. Morgan; Dr. Lucien R. Pyle, Medical Coordinator to Social Welfare, and Mrs. Pyle; Mrs. Betty Hanson, president of the Woman's Auxiliary to the Kansas Medical Society; Mrs. Gene VinZant, president-elect of the Auxiliary; and Mr. Swede Swenson, executive assistant of the Kansas Medical Society.

Our district still is short of doctors. We did not lose as many doctors this last year as we did in 1967, but we did not replace all those who left the previous years. We have a number of older physicians, well past the usual retirement age, who are still working full time to provide their communities with adequate medical coverage.

During the past year the physicians as well as many other persons interested in the health needs of this area have formed the High Plains Regional Health Association under the Kansas Regional Medical Program to study ways to improve the health care being offered in this area. We hope that through this program we can find ways to attract more physicians and other health personnel into our area.

The Valley Hope Alcoholic Treatment Center at Norton has again been an example to us of what can be done in a small community if people are interested in a project and will work together for it. The program at this center has been very successful and is drawing state-wide and national attention.

JAMES J. MARCHBANKS, M.D., *Councilor*

Nominating Committee

The Nominating Committee met on Thursday, February 20, 1969, and submits to the House of Delegates the following list of nominations for the elective offices of the Society. Wherever more than one nomination appears these are presented in alphabetical order. A very brief biography accompanies each name.

President-Elect

Francis T. Collins, M.D., Topeka. Born in 1914. Graduated from the University of Kansas School of Medicine in 1943. This year served as First Vice President.

First Vice President

William J. Reals, M.D., Wichita. Born in 1920. Graduated from Creighton University School of Medicine in 1945. This year served as Second Vice President and AMA Alternate Delegate.

Second Vice President

Kenneth L. Graham, M.D., Leavenworth. Born in 1921. Graduated from Ohio State University School of Medicine in 1945. Now serving as chairman of the Commission for Sociology and Economics.

James E. Hill, M.D., Arkansas City. Born in 1909. Graduated from the University of Kansas School of Medicine in 1934. Member of the Board of Healing Arts. Served on various committees of the Society.

James J. Marchbanks, M.D., Oakley. Born in 1923. Graduated from the University of Kansas School of Medicine in 1946. Currently serving as councilor from District 16.

E. Burke Scagnelli, M.D., Dodge City. Born in 1918. Graduated from Loyola University School of Medicine in 1943. Past president of Kansas Blue Shield, and has served on Society committees.

Constitutional Secretary

Emerson D. Yoder, M.D., Denton. Born in 1914. Graduated from the University of Kansas School of Medicine in 1949. Is now serving as Constitutional Secretary.

Treasurer

Chester M. Lessenden, Jr., M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1943. Is now serving as Treasurer.

AMA Delegate

John C. Mitchell, M.D., Salina. Born in 1913. Graduated from the University of Kansas School of Medicine in 1938. Past president of the Kansas Medical Society and presently serving as AMA Delegate.

AMA Alternate Delegate

John N. Blank, M.D., Hutchinson. Born in 1907. Graduated from the University of Kansas School of Medicine in 1938. Member of the Kansas State Board of Health and chairman of the Insurance Committee of the Society.

Thomas P. Butcher, M.D., Emporia. Born in 1905. Graduated from Rush Medical College in 1934. Past president of the Kansas Medical Society and has served on a number of Society committees.

Reports and Resolutions

To Be Presented to the House of Delegates, May 4, 1969

The five commissions of the Kansas Medical Society met at the Ramada Inn in Topeka on March 9, 1969. The resolutions presented here are the results of their work.

The following special reports are published at the request of the respective Commission and Committee chairmen.

Commission on Health Services

(Submitted by the Committee on Comprehensive Health Planning—Edward J. Ryan, M.D., Chairman.)

INTRODUCTION

The Comprehensive Health Planning Committee of the Kansas Medical Society was instructed by resolution at the last meeting of the House of Delegates to inform the members relative to this program in the state of Kansas.

The following information is intended to serve this purpose. It is by no means complete, but we hope that it is sufficiently informative to form a background for further information and to stimulate your interest and encourage your activity in this important project.

EDWARD J. RYAN, M.D., Chairman
Comprehensive Health Planning Committee

The purpose of this discussion is to present as briefly as possible something of the background and current status of Comprehensive Health Planning to form a background for discussion, acquisition of additional detailed current information and possible recommendations for action.

The basis for Comprehensive Health Planning is Public Law 89-749 enacted by Congress November 3, 1966, stating that Congress declares that fulfillment of our national purpose depends on promoting and assuring the highest level of health attainable for every person in an environment which contributes positively to healthful individual and family living; that attainment of this goal depends on an effective partnership involving close intergovernmental collaboration, official and voluntary efforts, and participation of individuals and organizations; that federal assistance must be directed to support the marshalling of all health resources but without interference in existing patterns of private professional practice of medicine, dentistry and related healing arts. Under this law, there were a series of subdivisions which were designated and financed somewhat as follows:

Section 314-A designated as *Formula Grants to States for Comprehensive Health Planning*, authorizing two and a half million for fiscal 1967, seven million for 1968, ten million for fiscal 1969 and fifteen million for 1970.

Section 314-B designated as *Project Grants for Comprehensive Areawide Health Planning*. Basically, this stated that public or nonprofit private agencies or organizations might apply for grants to develop comprehensive regional, metropolitan area or local area health planning. For this, seven and a half million was authorized for 1968, ten million for 1969 and fifteen million for 1970.

Section 314-C designated as *Project Grants for Training, Studies and Demonstrations in Health Planning*. This authorized two and a half million for 1968, five million for 1969, and seven and a half million for 1970.

Section 314-D designated *Formula Grants to State Health Authorities and Mental Health Authorities for Public Health Services*. This authorized sixty-two and a half million for fiscal 1968, ninety million in 1969 and one hundred million in 1970.

Section 314-E designated *Project Grants for Health Services Developments*. The authorization here was sixty-two and a half million for fiscal 1968.

One stipulation of the original Comprehensive Health Planning act was establishment of a single state agency which should be in charge of planning. In Kansas, by legislative action, this is the State Board of Health. Dr. Hugh Dierker, executive secretary of the Kansas State Board of Health, has been in on the groundwork in Kansas; however, he has recently resigned this position and will leave the state. Norma Satten has been designated as Health Services Coordinator for Comprehensive Health Planning within the Kansas State Department of Health.

In addition, there shall be established a State Health Planning Council appointed by the Governor. In Kansas, this Governor's Council is chaired by Dr. Thomas Taylor of Salina. According to our last information, the other members of that Council include: J. H. Abrahams, Topeka; Mrs. Jessica Branson, Lawrence; Bruce M. Brown, Kansas City, Kansas; Mrs. Randolph Carpenter, Topeka; Representative James P. Davis, Kansas City, Kansas; Leroy Hayden, Satanta; John Holmgren, Wichita; Robert Jay, Arkansas City; and James H. Yount, Topeka.

It should be emphasized that all phases of Com-

prehensive Health Planning within the state and from top to bottom shall be consumer-dominated. In other words, health care professionals such as physicians, nurses, public health officials, hospital administrators, nursing home operators, etc., shall constitute less than 50 per cent of any health planning group.

It is readily apparent that Comprehensive Health Planning, if it is to be an effective continuing operation, must basically function within a number of regional areas within the state. It is only within such regions that local evaluation of local problems is possible. Solutions to such problems should originate within the local areas, subject only to approval at the state level. Originally it was decided that planning regions in Kansas could be based geographically upon the 11 regions designated by the Kansas Department of Economic Development (KDED). Subsequently, it has concluded that the KDED map could serve as a useful working basis, but each region could work out its own functional boundaries. Within each of these functional regions a committee would be formed for planning purposes. This committee would necessarily consist of responsible educable citizens who could function on a continuing basis, but it should be emphasized again that the

membership of this committee must be made up of at least 51 per cent consumers of health services rather than purveyors of health services.

It should be emphasized that this local or area planning committee has a multiplicity of functions. Not only must it be concerned with health care personnel and health care facilities ("Services, Manpower, Facilities"), but it must involve itself in planning for such problems as air pollution, water pollution, sewage disposal, highway safety, etc. ("Physical and Environmental Health Problems"). More questions than answers are posed when one considers the personnel and functions of this consumer-dominated committee within each of these 11 or more areas within the state of Kansas. Some questions and a few answers might be:

1. How many members would constitute an efficient functional committee?

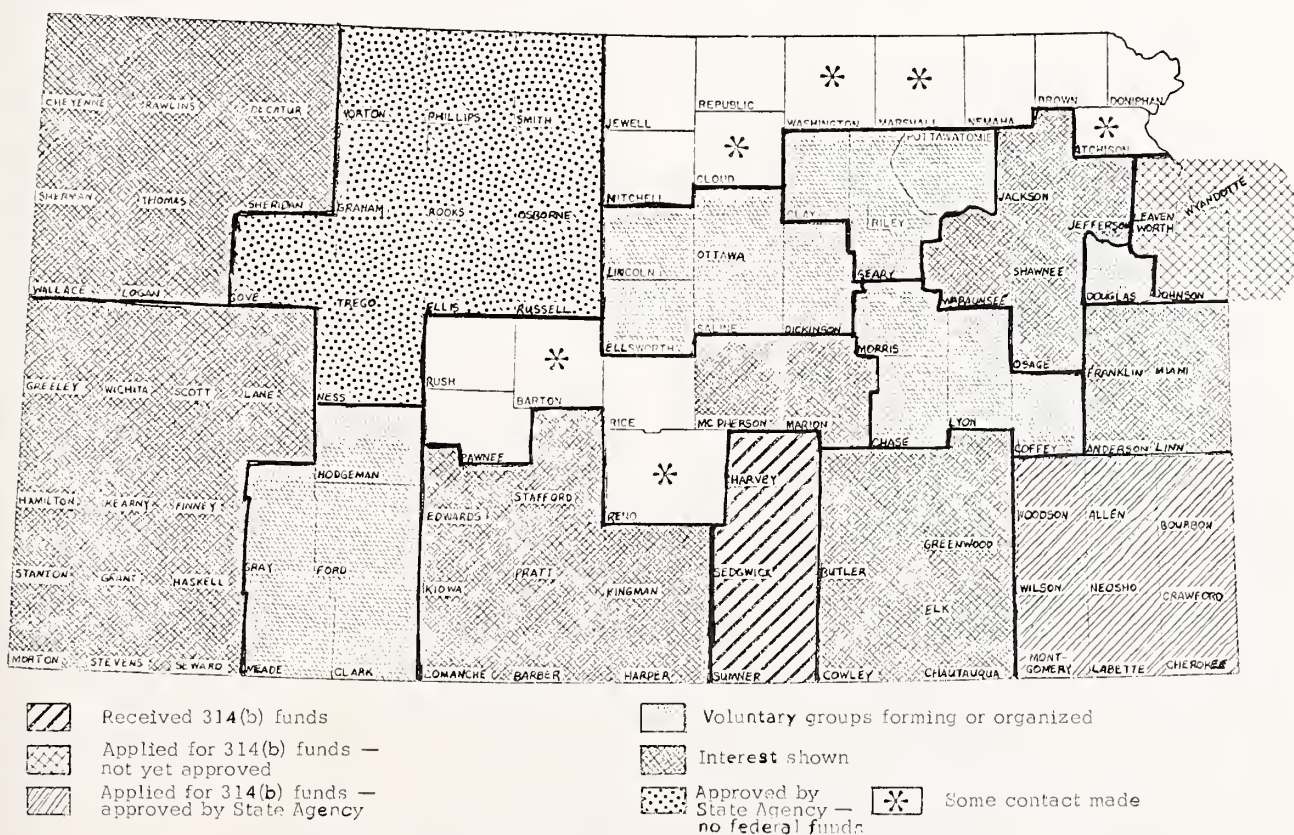
An estimate would be 15 to 30. More than 30 would constitute a large and inefficient group.

2. What professions should be represented in addition to health care professions?

An open question.

3. Should county and municipal government officials be included?

Definitely yes. They or their representatives are essential.



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4. Who is to take the initiative in organizing such committee and who will chair it?

Hopefully, a member or members of the Kansas Medical Society within each region will participate to maximum possible capacity.

5. Who will be responsible for preparation of a request for initial planning grant?

Norma Satten or other staff member from the State Department of Health will assist in preparation.

6. Who will spark continuing interest and activity and assure continuing finance for committee planning and actions?

7. How may the Kansas Medical Society involve itself most actively, aggressively and effectively in this program?

8. Will there be competition by the various organized health services within the state in an effort to dominate and lead these planning activities?

The answer to this is "yes." One or more other groups is already active. Physicians must become informed and involved—now.

We have no complete answer to any of these questions or any of a multiplicity of other questions which might arise, but we would like to supply a little additional information garnered from several meetings on the subject during the past year.

On November 19 and 20, 1968, Region 6 of the Public Health Service met in Overland Park for the sole purpose of discussing this Comprehensive Health Planning or the so-called Partnership for Health. One very consoling thought arose from the lengthy discussions during this meeting. This is the fact that the Public Health Service personnel are at least as confused as we are on the actual implementation and funding of these Partnership for Health Acts. One apparent problem discussed at length was the difficulty in stimulating enthusiasm within an area for this type of planning. Heavy emphasis was placed upon the importance of involvement of elected officials in the areawide program. This would certainly seem apparent since their cooperation will be essential for implementation of many public health and environmental corrections. It was pointed out that in larger metropolitan areas particularly, Comprehensive Health Planning was simply another health organization competing for its cut of the federal pie with a variety of other already financed health and environmental organizations. It seemed to be the consensus of opinion that it would take at least ten years to have Comprehensive Health Planning a fully functioning activity on a national basis. It was also pointed out that most of the grants to date have simply been for planning purposes. As of last November, at least, only one operational grant

for Comprehensive Health Planning had been designated and that was Jacksonville, Florida.

On December 3, a meeting on health planning in Kansas and on health delivery in Kansas was held in Topeka. This was an interesting meeting in that representatives from practically all of the purveyors of health services were present. The discussions were interesting but hardly earth-shaking and we doubt that any sweeping conclusions could be drawn. It was interesting, however, that one major discussion group took a rather dim view of many of the recommendations included in the Booz-Allen-Hamilton Report. A discussion of this report would certainly consume all of the time required for a meeting. It is, however, a significant and thought-provoking report and will certainly be the occasion for legislative action along several lines. It would pay every physician to familiarize himself with the salient health features of the Booz-Allen-Hamilton Report.

Finally, of great interest to all of us, and particularly worthy of discussion, is the recent presentation from Blue Shield to the various district Blue Shield Relations Committees. This includes a statement on planning presented to the Blue Shield Executive Committee and a statement of policy relative to Blue Shield involvement in regional planning. We believe that this statement is available to most of you and that it should be scrutinized carefully and discussed at some length. We feel that the Blue Shield approach is basically helpful and that the organization would not tend to gain monetarily by its involvement. The problem which arises is the attitude of the public toward Blue Shield assistance in a planning group which is already dominated by public membership. On the other hand, the organizational capacity of Blue Shield could be most helpful to physician members. It should be emphasized that the Kansas Hospital Association is already actively involved in areawide Comprehensive Health Planning.

We can visualize two roles which Blue Shield might helpfully play in the Comprehensive Health Planning program:

1. Advisory capacity in the initial organization of a regional planning committee. In this instance, advice from knowledgeable personnel might prove helpful. It should be emphasized, however, that the State Board of Health is the Comprehensive Health Planning Agency for Kansas and their personnel should never be by-passed.

2. In setting up health-care programs within a region, particularly programs which would yield maximum efficient use of personnel at minimum expense, Blue Shield knowledge and experience could be useful in advisory capacity.

Finally we cannot emphasize too strongly that it behooves us as physicians to become active, aggressive, and involved in this confused but developing activity. The time is now!

In conclusion we would like to acknowledge the help furnished by Dr. Thomas F. Taylor in supplying information to this committee.

Commission on Sociology and Economics

(Submitted by the Advisory Committee to Welfare—James A. McClure, M.D., Chairman.)

Throughout the year the Advisory Committee to Welfare has met approximately four times officially and has been pleased with the efficiency with which the operation and welfare administration has been proceeding. The chairman has met about four times with the State Board of Social Welfare prior to the dissolution of the old board and the formation of the new board. As will be recalled, Mr. Robert Anderson of Ottawa, former chairman of the Board of Social Welfare voluntarily resigned prior to the commencement of the 1969 Legislature. The Society and the Welfare Department both are very much indebted to Mr. Anderson for his contribution in our behalf and for his cooperation with the Society in implementing Title XIX.

Succeeding Mr. Anderson is Mr. William Graham of Wichita, who seems very interested in pursuing the previous policies of Mr. Anderson. The chairman has met one time with the Board at the time of this writing and at this meeting the Board seemed very interested in maintaining a liaison between our Society and their department.

In March 1969 our committee as a whole met with the budget director, Mr. James Bibb, and Mr. Robert Anderson to analyze, if possible, what the future might bring in the way of problems. At that time, Mr. Anderson stated that he would be glad to act as an unofficial consultant to our committee for the future. Mr. Bibb related his concern in regards to the difficulty the Department of Welfare, as well as the budget director, has in the formulation of an adequate budget. Were it not for the allocation of some four and a half million dollars, the Department of Social Welfare might have had to prorate some medical services. Two main problems are present. The first being the failure of physicians to submit their charges on a monthly basis, or even within 60 days of the time their respective treatments started. Mr. Bibb believes that if a bill could be submitted as a partial charge this would make a more even cost accounting for his department. He stresses the fact that one must have certain expenses to know what the

overall budget must provide. Certainly within the next calendar year the consideration of proration of fees is doubtful. Again stress is placed upon the present and future utilization, and the control of medical services to eliminate unnecessary care and expense. A study is now in progress to gain some experience concerning the degree of and necessity of laboratory and x-ray services in the hopes that a more efficient program may continue.

The Society and committee as a whole is very much in debt to Dr. Lucien Pyle for his unselfish contribution of time to the Welfare Department. Dr. Pyle has acted as a more efficient intercessor between the welfare recipients and the welfare vendors.

This committee wishes to express its appreciation to the some 1,800 doctors in the state of Kansas who have cooperated magnificently for the success of this program. As a committee we would solicit your continued help and efforts in maintaining good economy and efficiency within the program so that the medically indigent of our state may be well served and the physicians adequately remunerated.

(Submitted by the Blue Shield Study Committee—Edward S. Brinton, M.D., Chairman.)

This committee has not as yet completed its study; consequently, only an interim report will be submitted to the House of Delegates at this time. The House of Delegates, at the 1968 meeting, passed Resolution No. 72, asking that a detailed study of Kansas Blue Shield be made, and that a report be rendered at this year's meeting. Dr. Morgan appointed six members to conduct this study; they are as follows: Doctors Kenneth Graham, M. Robert Knapp, Penfield Jones, John Mitchell, Burke Scagnelli, and Edward S. Brinton. Each member of this committee was to act as a chairman of an individual section, with the privilege of gathering information or asking other members of the Kansas Medical Society to help in his particular portion of the project. All of us wish to thank the many people, both in the Kansas Medical Society and the Blue Shield organization, for their splendid cooperation; Mr. Ebel, Mr. Swenson and the Kansas Medical Society staff have spent many hours assembling and arranging the vast amount of material—to them a special thanks!!

For the younger members, it might be well to recall some of the past history of Blue Shield. The Kansas Physicians' Service was incorporated under the laws of the state of Kansas in 1945, by some members of the Kansas Medical Society, as a non-profit corporation. The Kansas Hospital Service Association was likewise created by the Kansas Hos-

pital Association. These were and are separate non-profit corporations; however, they operate under a single management. Mr. Sam Barham is executive director of both corporations. Expenses of the two corporations are prorated on the basis of the average number of contracts in force during the calendar year. Roughly, this proration has been about evenly divided even though the gross income of the Blue Cross corporation is substantially larger than that of Blue Shield.

It has been stated that the Kansas Physicians' Service was originally created by the Kansas Medical Society as an answer to the problem of financing medical care for families of low income in the State of Kansas. This plan was a contractual service benefit policy for those families with an annual income of less than \$3,000. Another low indemnity plan was established for families above this income level, but it did not guarantee complete physician services. The Kansas Physicians' Service board is composed of one member from each councilor district of the state—a total of 18; subscribers constitute 14 members of the Board. The executive committee of Blue Shield is composed of six physicians, and two subscriber members of the Blue Shield Board of Directors. Approximately one year after formation, the Kansas Physicians' Service joined the National Association of Blue Shield Plans to whom it pays dues, based on contracts, which for 1967 was \$29,252.82. Blue Shield is a copyrighted label which can only be used by members of the National Association of Blue Shield Plans.

Objectives for study by this committee were: (1) What, if any, legal responsibility exists between Blue Shield and the Kansas Medical Society? (2) Does the Kansas Medical Society control Blue Shield? (3) Who controls Blue Shield policy? (4) Is single administrative management advisable for both Blue Cross and Blue Shield? (5) What influence does Kansas Blue Cross or the National Blue Plans have over Kansas Blue Shield policy? (6) How and where does the Department of Health, Education and Welfare enter into local policy, and to what degree?

It was important to determine how the private insurance companies of Kansas felt about Blue Shield and the Kansas physician. Another large philosophical question was, how far do we as physicians and advocates of private enterprise want to go with our own plan in providing health care for the state and nation? Is there a threat of becoming involved with the federal government by our own plans, so that we have defacto socialization by something we originally created primarily for the medically indigent? Answers to the above questions required extensive investigation and time; consequent-

ly, a vast amount of material was assembled, letters written, legal contracts between the various organizations had to be reviewed, questionnaires, and personal interviews were necessary. Mr. Don Newkirk, a partner in the Wichita legal firm of Fleeson, Goosing, Coulson and Kitch, was employed to evaluate the legal questions which our inquiries raised. Needless to say, his advice and opinions have been valuable and we are grateful.

Dr. Scagnelli held a meeting with the last seven presidents of Blue Shield. The physician members of the Blue Shield board graciously attended a meeting with the committee and presented their views of the problems. Dr. Carl Akerman, chairman of the board of the National Association of Blue Shield Plans, and Dr. Ira Layton of Kansas City, who is a member of the Board of Directors of the National Association of Blue Shield Plans, were also interviewed. Dr. Knapp had extensive correspondence with the heads of various national health care organizations. He and Mr. Ebel flew to Des Moines, Iowa, for conferences with the president and officers of the Iowa State Medical Society, for background information on the methods the Iowa Medical Society employed to resolve their problems with Blue Shield. Dr. Mitchell contacted 16 private insurance companies operating in Kansas, to determine opinions about Kansas Blue Shield. Other conferences were conducted with individuals from the many components of the various physician committees and administrative staff, interlocked between the two organizations. Our recent questionnaire to the Kansas Medical Society membership was well received, and approximately nine hundred were returned—many with excellent comments. The organizational administrative staff was reviewed, as well as a superficial financial investigation on expenditures of Blue Shield.

Kansas Blue Shield has had exceptional growth in the last 20 years. In 1967 it had 273,452 contracts with revenue from premiums of \$18,775,583, and administrative expenses of \$2,109,081 or 11.2 per cent. Much of this growth had developed since the inception of Medicare, and the adoption of the Prevailing Charge Plan.

It was fairly evident to the committee that the average doctor is confused as to the terminology of fees. The Prevailing Charge Plan, usual and customary fee, the indemnity fee plan, and fixed fees meant different things to different people—obviously a clarification of terminology is in order. The Prevailing Charge Plan, to a participating physician, is a *contractual* fee. The physician is contracting his services to Blue Shield, and guarantees to charge no more to Blue Shield covered patients, and no less to patients who do not have Blue Shield coverage. This payment is subject to arbitration at various times.

With this contractual obligation by the participating physician, Blue Shield has been able to sell the people of Kansas a full physicians' service plan. In addition to this it has made possible the participation of Kansas Blue Shield in National contracts which are sold at a national level by Blue Shield covering groups dwelling in many states, e.g., General Motors. These contracts constitute nine per cent of Kansas Blue Shield business. The Prevailing Charge Plan has been a great marketing advantage for Blue Shield over other private insurance companies who may pay as high a fee under the indemnity plan, but cannot guarantee complete physicians' services under their policy.

It is a matter of record that Mr. McNerney, president of the National Blue Cross Association, is very much in favor of large medical centers with salaried physicians; the large labor unions also actively advocate this type health care. National Blue Cross dominates National Blue Shield and National Blue Cross objectives, either by coincidence or design, parallel those of the planners in the Department of Health, Education and Welfare. National Blue Shield has definitely revealed its plans for future health care, as outlined by Mr. John Castilucci who is president of the National Association of Blue Shield Plans, in *Medical World News*, November 15, 1967. This plan consists of a very extensive comprehensive service benefit plan that covers home, office, outpatient, psychiatry, nursing, dental care, eye glasses etc. It is also stated this plan shall be available by April 1969, by each Blue Shield member plan. This is based on the contractual payment of the usual and customary fee to the physician. Dr. Dwight Wilbur, president of the American Medical Association, has also suggested total comprehensive health care as a method of cutting hospital costs, as reported in the *AMA News*, January 1969; however, it is fairly obvious to the committee that for the doctor to provide even more guarantee of his services, he will have to accept more controls. Dr. Ira Layton of Kansas City, a member of the National Blue Shield Board was interviewed. He felt that high indemnity plans should be substituted for the usual and customary fee schedule, because of the dangers of future fixed fee control. We feel that the average Kansas physician who is relatively satisfied with the Prevailing Charge Plan does not realize the implications of selling his services on a guaranteed basis.

After meeting with the Blue Shield board members and past presidents of Blue Shield, it was fairly evident that the policies and thinking of Blue Cross gravitate into Blue Shield policy and planning. Blue Shield has had exceptional growth, and for many years a great deal of emphasis has been placed on subscribers benefits. It has been the administrative

policy to include more and more benefits to the subscriber, consistent with the national thinking. Mr. Barham, executive director of both Blue Cross and Blue Shield, is on record as stating that prepaid insurance should cover the whole spectrum of health care.

Whether the Kansas physician really wants to go to this limit under Blue Shield when he does not have any legal control over the program, is questionable. It may be argued that the Kansas Medical Society really controls Blue Shield policy because a majority of the Blue Shield Board are physicians—which is true; however, it was felt by most physician members of the Board who we interviewed that the professional people on the staff of Blue Shield were the ones who suggested new policies, practices and changes in existing policies. These suggestions, practices and changes are then discussed with the Blue Shield executive committee, and eventually presented to the entire Blue Shield Board with recommendations for action. It has been brought to light that the Blue Shield Board depends entirely on the Blue Shield executive committee for opinions on these matters; consequently, the Blue Shield Board member does not feel he is well informed on what is being submitted for passage. These policies may then be submitted to the Blue Shield Relations Committees of the Council Districts for their review, and here again there is a lack of understanding of the entire picture.

The results of Dr. Mitchell's questionnaire to private insurance companies were as follows. The majority felt that Blue Cross and Blue Shield advertising was not all together ethically acceptable. They also felt that physicians were giving more support to Blue Shield than other insurance companies, and support should be equal to all or no active support to any. None thought Blue Shield and Blue Cross were charitable and benevolent; some knew that Blue Cross was given discounts by the hospitals. Everyone thought Blue Cross and Blue Shield should not be tax exempt. The Kansas Blue Shield questionnaire sent out by the committee was well received. Approximately nine hundred were returned with 279 comments. There were many blanks indicating indcision or lack of information. In the main, the Kansas physician was satisfied with the Prevailing Charge Plan, and he wants his fee paid directly to him. The majority felt we needed more influence over Blue Shield, but they did not want to create a new Kansas physicians' service. He was equally divided on a guaranteed "paid in full fee," versus an indemnity plan. In contrast, he felt (7 to 1) that the hospital patient should pay a portion of costs out of his own pocket.

Conclusions

1. The Kansas Medical Society must exert more influence over the policies of Kansas Blue Shield, through its members who are on the Blue Shield Board of Directors.

2. Since the Kansas Medical Society does not have any legal control of Blue Shield, we recommend that each member of the Society serving in various Blue Shield capacities give a careful analysis to his part in making policy decision. If he is a member of the Blue Shield Board of Directors, he is legally responsible for Blue Shield performance in case of litigation against that corporation.

3. Blue Cross has had influence over Blue Shield at the national and state level; therefore, a separate director for each corporation is recommended with his own administrative staff. The director and staff will be responsible only to their respective board of directors.

4. The members of the Blue Shield Relations Committees of the Councilor Districts should be recommended for appointment by their own county medical society to the Kansas Medical Society president, who in turn should make the final appointment for a specified period of time in office.

5. Since there hasn't been any financial accounting of the Blue Shield program made to the Kansas Medical Society in the past, and millions of dollars are handled annually by Blue Shield, action should be taken to provide a budget and accounting, in depth, of expenses—to whom and what for—to the Kansas Medical Society annually.

6. The Kansas physicians should take a serious look at the contractual Prevailing Charge Plan versus a high indemnity type payment plan, as a method of payment for the future.

7. This committee or another appointed by the president of the Kansas Medical Society should see that effective steps of reorganization of Blue Shield be carried out as directed by the Kansas Medical Society House of Delegates.

RESOLUTION NO. 1

REFERENCE COMMITTEE A

(Submitted by the Commission on Education—William R. Roy, M.D., Chairman.)

Action on Resolutions

WHEREAS, Resolutions are frequently proposed and passed by the House of Delegates and printed in the JOURNAL OF THE KANSAS MEDICAL SOCIETY, they do not always result in action; and

WHEREAS, They are generally initiated by a com-

mittee, commission or individual concerned with a particular health or medical-related area, the resolutions are of importance to the medical community and, if passed by the House of Delegates, indicate mutual concern by the Kansas Medical Society; and

WHEREAS, These resolutions generally state the problems and make recommendations of a particular need, the means for implementation are seldom included; therefore be it

Resolved, That no resolution be proposed to the House of Delegates unless it contains a section indicating methods for implementation; and be it further

Resolved, That those initiating the resolutions, or other interested members of the Society, be required to set up meetings with the involved groups or individuals to state clearly the concerns of the Society, to offer help in solving the problems, and to take whatever steps necessary to bring about the results implied in the resolutions; and be it further

Resolved, That the commissions review the resolutions within the year and report the actions taken and results obtained to the next meeting of the House of Delegates.

RESOLUTION NO. 2

REFERENCE COMMITTEE A

(Prepared by the Committee on School Health—H. P. Jubelt, M.D., Chairman. Submitted by the Commission on Education.)

Standard College Health Form

WHEREAS, Practically every university and college in this state requires some type of entrance health information and physical examination; and

WHEREAS, Most of these forms from the different institutions request essentially the same information; and

WHEREAS, It would be of considerable benefit to the student and a valuable aid in the conservation of time and effort by the physician if a single College Entrance Health and Physical Examination Form were adopted; therefore be it

Resolved, That:

1. The Kansas Medical Society recommend that such a standard form be adopted.

2. The Kansas Medical Society, through its members on governing bodies such as the Board of Regents, actively promote the adoption of same.

3. The Kansas Medical Society, through its members who are staff physicians at colleges and universities, actively participate in conferences to devise and adopt a standard form for presentation to the next meeting of the House of Delegates.

4. The Kansas Medical Society make this resolution known to all college and universities in the state and to all organizations of universities and colleges in the state.

RESOLUTION NO. 3

REFERENCE COMMITTEE A

(Prepared by the Committee on Comprehensive Health Planning—E. J. Ryan, M.D., Chairman. Submitted by the Commission on Health Services—Spencer C. McCrae, M.D., Chairman.)

Comprehensive Health Planning

WHEREAS, Comprehensive Health Planning, because it covers virtually every phase of health, may be the most significant of all federally sponsored health programs; and

WHEREAS, This is distinctive because planning originates at the area level according to area need; and

WHEREAS, The physician is more immediately concerned than is any other person that local planning for health be scientifically sound, unprejudiced and practical; therefore be it

Resolved, That this Society reaffirm its position more vigorously than before and declare that sound health care will not be delivered to the people of Kansas in the future in an efficient manner *unless* physicians today provide leadership to area Comprehensive Health Planning Councils; and be it further

Resolved, That each physician in each area of Kansas become familiar with and involved in the program of Comprehensive Health Planning.

RESOLUTION NO. 4

REFERENCE COMMITTEE A

(Prepared by the Committee on Comprehensive Health Planning. Submitted by the Commission on Health Services.)

Thomas F. Taylor, M.D.

WHEREAS, Thomas F. Taylor, M.D., has been since its beginning and continues to be, chairman of the State Advisory Commission for Comprehensive Health Planning; and

WHEREAS, Dr. Taylor contributes a vast amount of time to this program; and

WHEREAS, Dr. Taylor provides sound, knowledgeable and effective leadership to the people of Kansas, including physicians in a program that embraces virtually every facet of health; and

WHEREAS, Dr. Taylor has directed that Comprehensive Health Planning shall be conducted at the area level according to the last judgment of local leadership; therefore be it

Resolved, That this Society express its gratitude to Dr. Taylor for the excellent manner in which he is directing Comprehensive Health Planning in Kansas; for his almost singular approach to the operation of a federally sponsored program in his request for local initiative; for his continual appeal that professional people, including physicians, actively participate in health planning; and for his willingness to serve the Society in this most far-reaching project.

RESOLUTION NO. 5

REFERENCE COMMITTEE A

(Prepared by M. Robert Knapp, M.D. Submitted by the Commission on Health Services.)

Forum on Solo Practice

WHEREAS, This House of Delegates at its last meeting directed our delegates to the American Medical Association to introduce a resolution directing that a forum on solo practice be held under the auspices of the American Medical Association; and

WHEREAS, The Kansas delegates did introduce such a resolution, and

WHEREAS, The House of Delegates of the American Medical Association adopted such a resolution stating that "the Board of Trustees be directed to set up a national forum on the solo practice of medicine"; and

WHEREAS, No such forum has been planned; therefore be it

Resolved, That the House of Delegates of the Kansas Medical Society once more directs its delegates to the American Medical Association to implement a national forum on solo practice; and be it further

Resolved, That a determination be made as to why the Board of Trustees of the American Medical Association has disregarded the directives of its parent group, the House of Delegates of the American Medical Association.

RESOLUTION NO. 6

REFERENCE COMMITTEE A

(Prepared by the Committee on Conservation of Hearing and Speech—Victor Moorman, M.D., Chairman. Submitted by the Commission on Scientific Study—H. Thomas Gray, M.D., Chairman.)

Hearing Aid Board of Examiners

WHEREAS, House Bill No. 1837 passed in 1968 is an act concerning hearing aids and a board of examiners in fitting and dispensing of hearing aids; and

WHEREAS, The board of examiners consists of five persons; and

WHEREAS, There is no provision that the board must have an M.D. Otolaryngologist and a Ph.D. Audiologist as members; and

WHEREAS, The hearing aid dealers should have a majority representation on the board; and

WHEREAS, A board with both an M.D. Otolaryngologist and Ph.D. Audiologist in addition to three (3) hearing aid dealers would immensely broaden the professional basis of the board; therefore be it

Resolved, That the governor be asked to consider the appointment of an M.D. Otolaryngologist and a Ph.D. Audiologist as members of the board.

RESOLUTION NO. 7

REFERENCE COMMITTEE A

(Prepared by the Committee on Mental Health. Submitted by the Commission on Scientific Study.)

Comprehensive Health Planning

WHEREAS, The Kansas Medical Society has previously endorsed and reaffirmed the selection of the Kansas State Board of Health as the Planning Agency for Comprehensive Care in Kansas; and

WHEREAS, The State Board of Health and the Coordinating Council for Health Planning have indicated continuing interest in soliciting cooperation from the members of the Kansas Medical Society; therefore be it

Resolved, That the Kansas Medical Society encourage its Mental Health Committee to take appropriate initiative for integrating mental health prevention and treatment programs into the comprehensive health planning efforts in Kansas with all such Mental Health Committee endeavors to be in close liaison with the Kansas Medical Society's Committee on Comprehensive Health Planning.

RESOLUTION NO. 8

REFERENCE COMMITTEE A

(Prepared by the Committee on Mental Health—Edwin F. Price, M.D., Chairman. Submitted by the Commission on Scientific Study.)

Medical Responsibility in Mental Health Centers

WHEREAS, The need exists for guidelines to assist the governing boards in establishing and maintaining medical responsibility for patient care in mental health centers in Kansas; therefore be it

Resolved, That the Kansas Medical Society recommends the following criteria to assure medical responsibility in all mental health centers in Kansas which offer treatment including psychotherapy for any type of mental or emotional illnesses:

1. That the governing board of each center appoint a medical director, a local physician licensed under the Healing Arts Act, who will assume medical responsibility for the clinical-treatment services of each center.

2. That the medical director be directly responsible to the governing board of each mental health center.

3. That all other staff members of the center, who perform clinical-treatment services, be directly responsible to the medical director for such functions.

4. That the medical director take final responsibility for decisions regarding diagnosis, prescriptions, assignment and treatment.

5. That, if the local medical director is not a board certified or board eligible psychiatrist, the governing board of the center appoint such a consulting psychiatrist who will consult with the medical director and with his staff to the extent that the medical director deems necessary for him best to meet his responsibilities to the center's patients.

6. That the medical director and/or the consulting psychiatrist attend regular staff meetings at the center, have supervisory conferences with center staff concerning treatment of patients, determine which staff members may or may not participate in clinical-treatment services and in general have direct enough contact with the clinical-treatment services to assure that the patients' medical and emotional needs are adequately met.

RESOLUTION NO. 9

REFERENCE COMMITTEE A

(Prepared by the Committee on Venereal Diseases—Rosemary Harvey, M.D., Chairman. Submitted by the Commission on Scientific Study.)

Gonorrhea Epidemiology

WHEREAS, Gonorrhea has reached epidemic proportions in Kansas and throughout the nation; and

WHEREAS, The infected undiagnosed and untreated female is a primary source of spread of gonorrhea; and

WHEREAS, The interviewing of male gonorrhea patients for female contacts, and the location and bringing to medical examination of female contacts, are essential to the control of gonorrhea; therefore be it

Resolved, That the Kansas Medical Society urge the State Department of Health to provide training in interviewing techniques and field investigation of gonorrhea patients for all public health nurses in Kansas, and that the interviewing of male gonorrhea patients and follow-up of female contacts be a part of the public health nursing services throughout the state.

RESOLUTION NO. 10

REFERENCE COMMITTEE A

(Prepared by the Committee on Venereal Diseases. Submitted by the Commission on Scientific Study.)

Venereal Disease Reporting

WHEREAS, The control of venereal disease depends upon immediate contact follow-up and case-finding; and

WHEREAS, Physician-reporting of venereal disease is essential for such contact follow-up and case-finding; and

WHEREAS, The recent American Social Health Association survey showed that only 10% of infectious syphilis cases and only 22% of gonorrhea cases are reported by Kansas physicians; therefore be it

Resolved, That the Kansas Medical Society urge each physician to report every case of venereal disease which he sees to the Kansas State Department of Health.

RESOLUTION NO. 11

REFERENCE COMMITTEE A

(Submitted by the Commission on Society Organization—Clair C. Conard, M.D., Chairman.)

AMA Delegates and Alternates

WHEREAS, The Kansas Medical Society invests considerable money in sending all the delegates to the American Medical Association meeting; and

WHEREAS, The alternate delegates have the opportunity to gain experience and knowledge in the activities of the American Medical Association; and

WHEREAS, It would be an investment loss to the Kansas Medical Society if alternate delegates did not advance to delegates when the opening arose; therefore be it

Resolved, That the Bylaws of the Kansas Medical Society, number 6.33 (AMA Delegates) be amended by adding a second paragraph stating, "*When an opening occurs for a delegate, the then elected alternate delegates will automatically be nominated for the office of delegate.*"

RESOLUTION NO. 12

REFERENCE COMMITTEE A

(Submitted by the Commission on Society Organization.)

Bronze Plaque

WHEREAS, The Kansas Medical Society has recently acquired a building for its state offices; and

WHEREAS, The acquisition of this building represents a great deal of time and study by the Executive Committee and the Executive Staff; and

WHEREAS, It is customary for such an endeavor to be noted; therefore be it

Resolved, That a bronze plaque be purchased by the Kansas Medical Society, to be affixed in a prominent place inside the Society building, listing the names of the Executive Committee, the Executive Staff, date of purchase, founding date of the Society, and any other appropriate information.

RESOLUTION NO. 13

REFERENCE COMMITTEE A

(Submitted by the Commission on Society Organization.)

Building Committee

WHEREAS, The ownership of property will require management with payment of bills, general upkeep, and maintenance; therefore be it

Resolved, That a Building Committee consisting of four physicians be appointed by the president of the Kansas Medical Society; and be it further

Resolved, That the Special Building Fund already established may be drawn against by any two of the following three signatures:

1. The president of the Kansas Medical Society;
2. The treasurer of the Kansas Medical Society; or
3. The chairman of the Building Committee.

RESOLUTION NO. 14

REFERENCE COMMITTEE A

(Submitted by the Commission on Society Organization.)

Rules of Order

WHEREAS, There are numerous occasions in the proceedings of the Kansas Medical Society, the House of Delegates, and the Council when it would be advantageous to the Society to be able to suspend its rules to handle unusual situations; therefore be it

Resolved, That item number 12, entitled Rules of Order, be amended by adding a second paragraph which states, "*The Rules of Order and Bylaws of this Society may be suspended at any time by a vote of two thirds of those delegates present.*"

RESOLUTION NO. 15

REFERENCE COMMITTEE A

(Prepared by the Committee on Constitution and Bylaws—V. Dean Schwartz, M.D., Chairman. Submitted by the Commission on Society Organization.)

Amendments to the Bylaws

WHEREAS, The Committee on Constitution and Bylaws was asked to make some clarifications in the various types of membership categories of the Kansas Medical Society, therefore be it

Resolved, That the following amendments to the Bylaws be adopted.

1.612 DUES-EXEMPT MEMBERS: Component societies may designate members to be excused from paying dues in these categories:

1.6121 *Personal Exemption*: Members for whom extended illness or financial limitations create genuine difficulty in paying the dues.

1.6122 *Retirement*: Members who have retired from active practice.

1.6123 *Service*: Members temporarily serving with the armed forces except as provided in 1.7.

1.6124 *Emeritus*: Members over seventy (70) years of age, with dues-paying status for ten (10) years or more may apply for this category, or elect to retain active membership.

1.63 HONORARY MEMBERS: Persons outside the membership of this Society may be designated Honorary Members by a majority vote of the House of Delegates. They pay no dues and may not vote or hold office:

1.631 Members of the medical societies of other states or of foreign medical societies recognized by the American Medical Association.

1.632 Physicians from Kansas, having graduated from an accredited school of medicine, and who are serving outside the United States as missionaries or in educational or philanthropic work.

1.635 *Honorary Members* from the membership of this Society are named for notable achievement in the field of medicine or extraordinary service in the interest of this Society. They are granted Honorary status by a vote of the House of Delegates and pay no dues, but if they were previously voting members, retain the right to vote and hold office.

1.7 LEAVE OF ABSENCE: Leave of absence is granted any member for the period specified by the secretary of his component society, in written certifica-

tion to the secretary of this Society, excepting that an absence shorter than six (6) months will not alter his previous status. A member on leave of absence for more than six (6) months is exempt from payment of dues in any full six (6) months of absence calculated from 1 January and 1 July, upon certification by his component society. The member's privileges in this Society are suspended for the period in which he pays no dues and until he is reinstated by certification of the component society.

1.71 If leave of absence is taken after the annual dues are paid, they are not refunded. Dues will not be exacted from the member on leave at the time they become payable. If he is absent for a full year or more, the prepaid dues will be applied to the year of his return.

1.72 Leaves of absence less than six (6) months long will not affect the status of membership or dues obligations in this Society.

1.73 A leave of absence exceeding one year, calculated from the first certification in the annual report of membership, must be recertified in each subsequent annual report, or until notification of reinstatement (or discontinued membership) is received from the component society.

92.12 The Advisory Committees are:
The Committee on the Auxiliary
The Committee on Blue Shield Relations
The Committee on Medical Assistants

The President-Elect shall consult with the presidents of the respective organizations prior to making his appointments. He may appoint other advisory committees as the need arises.

92.13 Delete

RESOLUTION NO. 16

REFERENCE COMMITTEE B

(Prepared by the Committee on Constitution and Bylaws. Submitted by the Commission on Society Organization, upon request from Commission on Sociology and Economics.)

Committee on Blue Shield Relations

WHEREAS, The function of the Committee on Blue Shield Relations should be under the Commission for Sociology and Economics; therefore be it

Resolved, That Bylaw 91.22 be amended to read: "*The Commission for Sociology and Economics recommends and implements policies relating to medical economics, fee schedules, industrial medicines, relation with the Bar Association, servicemen's dependents, Blue Shield relations, and other subjects of socioeconomic nature*"; and, be it further

Resolved, That the chairman of the Blue Shield Relations Committee will be appointed from the Commission on Sociology and Economics, and the District Blue Shield Relations Committees shall be appointed by the county medical societies.

RESOLUTION 17

REFERENCE COMMITTEE B

(Prepared by the Committee for Constitution and Bylaws. Submitted by the Commission on Society Organization, upon request from the Commission on Sociology and Economics.)

Committee on Blue Shield Relations

WHEREAS, The Committee on Blue Shield Relations is properly under the function of the Commission on Sociology and Economics; therefore, be it

Resolved, That Bylaw 92.12 be amended so that the Committee on Blue Shield Relations will no longer be an advisory committee.

RESOLUTION NO. 18

REFERENCE COMMITTEE A

(Prepared by the Committee on Constitution and Bylaws. Submitted by the Commission on Society Organization.)

State Meeting Format Committee

WHEREAS, The functions of the Committee on State Meeting Format are now under the jurisdiction of the Commission on Society Organization; therefore be it

Resolved, That the Committee on State Meeting Format be eliminated as one of the advisory committees of the Kansas Medical Society.

RESOLUTION NO. 19

REFERENCE COMMITTEE A

(Prepared by the Committee on Ethics and Grievances—George Maser, M.D., Chairman. Submitted by the Commission on Society Organization.)

Appellate Action

Be It Resolved, that Bylaw 8.322 (Appellate Action) be amended to read: "In cases referred by comparable judicial bodies of component societies, the Board of Censors sit in hearing without previous executive committee consideration"; and, be it further

Resolved, That the Board of Censors shall receive from each councilor a report of any change in membership status of members or prospective members arising from disciplinary action. The board shall

send such information to the Kansas Medical Society, the component society to which the physician belongs, the American Medical Association, and the Kansas State Board of Healing Arts, and, if involved, to another state medical society.

RESOLUTION NO. 20

REFERENCE COMMITTEE A

(Prepared by the Committee on Ethics and Grievances. Submitted by the Commission on Society Organization.)

Ethical Behavior

PREAMBLE: Questions regarding the ethical behavior of a member are most properly handled by the component society. In small organizations, the entire society would probably sit as a committee. In societies with 25 or more members there should be a definite committee structure to handle complaints. Except for that, the procedure in a small and large society should be similar.

Be It Resolved, That the Councilor assist the component societies in his district to organize a committee on ethics, or censors, or complaints, or whatever name may be selected. Each component society should record in writing at least the following:

1. The name of the committee, its size, how members shall be named—either by appointment or election.

2. The terms of the membership on this committee should be staggered to assure continuity of experience.

3. The purpose of this committee, its duties and limitations should be spelled out. In general, the committee should be authorized to examine official complaints against a member of the society. It should be empowered to hear the plaintiff and the defendant, and witnesses as may be needed. The committee should be required to act within a specified time period.

4. Each component society should list by name some examples of the type of complaints that would appropriately come before the committee.

5. No complaint may come before the committee except in written form and signed by the complainant.

6. Committee procedures should be spelled out. Upon receiving the complaint, the committee should notify the defendant of the substance of the charges made against him. The committee should arrange a hearing and conduct an investigation after which the committee will make a recommendation in writing which shall be presented before the Society for action.

7. The committee shall preserve a permanent record of its activities and recommendations.

8. The committee may find the charges to be unfounded and when convinced this is true should make a clear recommendation to the Society. Or, the committee may recommend censure, suspension or revocation of membership. The committee may find that the problem cannot adequately be handled locally. The recommendation to the component society would then be that the matter be referred to the Councilor of the district.

9. The committee shall refer to the Councilor, if he is requested to accept responsibility for the complaint, a copy of its records. The Councilor will make an independent investigation and will report his recommendation to the Committee on Ethics (the Council) of the Kansas Medical Society. The Council will conduct its hearing and will report its recommendations to the component society and to the Kansas State Board of Healing Arts if findings are sustained.

10. The defendant physician may appeal the decision of the component society to the Committee on Ethics of the Kansas Medical Society through the Councilor of his district. He may appeal the decision of the Kansas Medical Society to the Judicial Council of the American Medical Association.

Be It Further Resolved, That in the larger societies a separate investigating committee perform the duties defined above and that a report of the investigation be referred to a board of censors, and that the censors prepare the report for the Society. The effect of this resolution is to afford the defendant the opportunity of an investigation by a second committee.

RESOLUTION NO. 21

REFERENCE COMMITTEE A

(Prepared by the Committee on Ethics and Grievances. Submitted by the Commission on Society Organization.)

Individual Responsibility

PREAMBLE: It is fully recognized that 99% of all doctors of medicine abide by the requirements of Medical Ethics. Such are welcomed into the family of organized medicine. Committees on Ethics and Censorship should carefully avoid the slightest unnecessary obstacle that might discourage the ethical physician in his effort to unite with a medical society.

Because the unethical behavior of one member reacts to the disadvantage of all and to the Society, it is considered appropriate that the applicant express his willingness to abide by such principles as are afforded by the Society; therefore be it

Resolved, That each component society require every applicant for membership to sign a statement which includes, but is not limited to, the following:

"I agree to be governed in my professional activities by the Principles of Medical Ethics.

"I agree to the Bylaws of this Society, and reserving the right to appeal, I will abide by the principles of medical ethics of the American Medical Association."

RESOLUTION NO. 22

REFERENCE COMMITTEE A

(Prepared by the Committee on Ethics and Grievances. Submitted by the Commission on Society Organization.)

Committee on Membership

WHEREAS, The history and the previous experience of the applicant to membership is a source of much information; and

WHEREAS, Lack of information in an interval of even one month may be of significance; therefore be it

Resolved, That each component society should establish a committee on membership, which shall:

1. Receive in writing from the applicant an account of his professional activities from the date of his graduation from medical school to the present.

2. Satisfy itself that all periods are fully and correctly covered.

3. Report its findings to the Society.

RESOLUTION NO. 23

REFERENCE COMMITTEE A

(Prepared by the Committee on Ethics and Grievances. Submitted by the Commission on Society Organization.)

Probationary Membership

WHEREAS, Many component societies require each applicant for membership to enter a period of probationary membership prior to his election; and

WHEREAS, This period serves to acquaint the membership with the quality of the applicant's professional service, his character and his ethics; and

WHEREAS, A short probationary period may defeat its purpose by calling for a vote before the applicant's past record and his present performance can be fully evaluated; therefore be it

Resolved, That the House of Delegates encourage each component society to require a one-year probation period of each new applicant and that each councilor be requested to assist the societies in his district to accomplish this procedure.

RESOLUTION NO. 24

REFERENCE COMMITTEE A

(Prepared by the Committee on Non-Member Physicians—Phillip M. Platten, M.D., Chairman. Submitted by the Commission on Society Organization.)

Membership

Be It Resolved, That component societies be encouraged to form a membership committee with the purpose of acquainting physicians in training and those physicians who are not now members with the Kansas Medical Society, its policies, and advantages of membership.

RESOLUTION NO. 25

REFERENCE COMMITTEE A

(Prepared by the Committee on Non-Member Physicians. Submitted by the Commission on Society Organization.)

Membership-at-Large

WHEREAS, Membership in the American Medical Association has declined from 75% to 60% of licensed physicians since 1960; and

WHEREAS, An estimated 25% of practicing physicians in the state of Kansas are not members of the Kansas Medical Society; therefore be it

Resolved, That the Kansas Medical Society and Bylaws pertaining to membership categories be revised to create a new membership category to be designated Membership-at-Large.

1. Eligibility for at-large membership category shall be limited to fulltime salaried physicians practicing in the state of Kansas who are not in the private practice of medicine.

2. Those eligible shall be non-member physicians who:

a. Do not wish to join a component society.

b. Such persons who elect to join the at-large memberships shall do so subject to the approval of their component medical society.

c. Applicants for membership in the at-large membership category must meet all other requirements for membership in the Kansas Medical Society.

d. The Membership-at-Large category will set its own dues, elect its own officers, and adopt its constitution and bylaws.

e. The Membership-at-Large category will be considered as a component society, will have rep-

resentation to the Kansas Medical Society House of Delegates on the basis of membership, one delegate for each 20 physicians or major fraction thereof.

f. The Membership-at-Large Society shall constitute the 19th Councilor District of the Kansas Medical Society and will be eligible for one councilor representative.

RESOLUTION NO. 26

REFERENCE COMMITTEE A

(Prepared by the Committee on Roster—Edward Campbell, M.D., Chairman. Submitted by the Commission on Society Organization.)

Membership Directory

WHEREAS, The matter of publication of the directory was given to a committee; and

WHEREAS, This committee is desirous of making the directory an effective tool for information to the members of the Kansas Medical Society; therefore be it

Resolved, That the directory be published each year and that it contain this additional information over what the 1968 directory shows:

1. Congressional maps, names of congressmen and information regarding how, when, and where they might be contacted.

2. Councilor district map and county medical society map with meeting dates of the societies.

3. Synopsis of Department of Health regulations, Healing Arts, and Coroner's laws.

4. List of committees under commissions.

5. List of specialty society presidents.

6. List of specialty inpatient hospitals.

7. List of poison control centers.

8. List of county or specialty executives and secretaries on the organizational page.

9. Index page.

10. Change the color of the cover to yellow.

11. Other data deemed pertinent.

RESOLUTION NO. 27

REFERENCE COMMITTEE A

(Prepared by the Committee on Roster. Submitted by the Commission on Society Organization.)

Roster

Be It Resolved, That a packet of information, including the Roster as well as other pertinent information to the practice of medicine, should be compiled and mailed to all physicians who are newly established in the practice of medicine in Kansas.

RESOLUTION NO. 28

REFERENCE COMMITTEE A

(Prepared by the State Meeting Improvement Committee—Donald Smith, M.D., Chairman. Submitted by the Commission on Society Organization.)

Resolutions

Be It Resolved, That the Bylaws item 5.4412 be amended to read:

"Resolutions not previously published and distributed to the members of the House shall be read in full and shall be presented in sufficient number to furnish each delegate with a copy."

RESOLUTION NO. 29

REFERENCE COMMITTEE A

(Prepared by the State Meeting Improvement Committee. Submitted by the Commission on Society Organization.)

State Meeting Format

WHEREAS, There has been a genuine interest in condensing the state meeting format; therefore, be it

Resolved, That the House of Delegates adopt the following format:

Sunday Afternoon:

1:00 p.m. 1st House of Delegates Meeting.

3:30 to 6:00 p.m. Reference Committee Meetings.

Sunday Evening:

To be announced by the Host Society (possibly in collaboration with the Committee on Medicine and Religion).

Monday Morning:

Continued Reference Committee meetings as necessary.

Monday Morning and Afternoon:

Sports activity.

Monday Evening:

6:00 p.m. K.U. Alumni Hosts Cocktail Hour.

7:00 p.m. President's Banquet and time given to the Sports Association for awarding trophies and prizes.

Tuesday Morning:

Scientific Meetings—2 sessions—4 meetings.

Tuesday Noon:

General Buffet Luncheon for all attendees and delegates.

Tuesday:

1:00 p.m. 2nd meeting of House of Delegates followed by meeting of the Council.

RESOLUTION NO. 30

REFERENCE COMMITTEE B

(Prepared by the Committee on Blue Shield Study—Edward S. Brinton, M.D., Chairman. Submitted by the Commission on Sociology and Economics—Kenneth L. Graham, M.D., Chairman.)

Separation of Blue Cross-Blue Shield

WHEREAS, The 1968 House of Delegates of the Kansas Medical Society directed that there be an investigation of Blue Shield; and

WHEREAS, This has been assigned to a special committee of the Socio-Economics Commission; and

WHEREAS, It seems to this committee, after much study, that the following be true:

1. The status of *Kansas Physicians' Service* as an active member of the National Association of Blue Shield Plans, is contingent upon the continued "substantial support of the Kansas Medical Society" and participation agreements with a majority of the physicians in the state of Kansas, and the members of the Kansas Medical Society have the right and duty to exercise substantial control over Kansas Blue Shield policies.

2. In the public mind, Kansas Blue Shield appears to be a part of Kansas Blue Cross. The Kansas participating physician is often held responsible for Kansas Blue Cross rate increases and for other policies of Kansas Blue Cross over which he has little or no control.

3. The economical Blue Shield rates representing frugality on the part of the participating physicians, and some contractual commitment on their part in holding the cost of medical care to Blue Shield subscribers down, are frequently used as a lever to promote the sales of Kansas Blue Cross contracts.

4. The policies and plans of Kansas Blue Cross grow continually closer to those of National Blue Cross.

5. The plans, expansions, and policies of National Blue Cross grow continually closer to those of the American Hospital Association, of the Department of Health, Education and Welfare, and other Social thinkers holding views dissimilar to that of the Kansas physicians.

6. By virtue of the sheer size of monies handled respectively by the Kansas Blue Cross and the Kansas Blue Shield, there is a pronounced tendency for the good of the former to dominate that of the latter in matter of plans, policies, and the concern exhibited over them by their joint administration.

7. Board members of the Kansas Blue Shield are not always well informed by the joint Blue Cross-Blue Shield administration as to the purposes and origins of various plans and policies.

8. The Kansas Medical Society in the past has exerted little or no influence on Kansas Blue Shield either in the selection of board members and members of District Blue Shield Relations Committees, or in originating plans and policies.

Therefore Be It Resolved:

1. That this House of Delegates direct the Executive Committee of the Council of the Kansas Medical Society to exercise care, prudence, and its influence in the selection of Kansas Blue Shield board members, so that interested and well informed physicians can be placed on the board.

2. That the House of Delegates, the Council and its Executive Committee offer instruction and direction to all Blue Shield board members as to the desires of the practicing physicians in Kansas.

3. The Kansas Medical Society should be more active through its House of Delegates, the Council and its Executive Committee in the origination of suggestions to the Kansas Blue Shield board for new policies consonant with the wishes of Kansas physicians.

4. That the House of Delegates adopt as the policy of the Kansas Medical Society the concept of an administrative division of Blue Cross and Blue Shield with each having a separate executive director and administrative staff of its own.

5. The House of Delegates direct similar efforts be made to promote a clear distinction in the minds of the general public as to the difference between Blue Cross and Blue Shield.

6. That the actions of this House be made known widely in this regard with the particular objective of informing the Blue Shield Board of Directors of the position of the Kansas Medical Society.

7. The House of Delegates receive an in-depth financial report and budget annually.

8. That the Blue Shield Study Committee be continued.

RESOLUTION NO. 31

REFERENCE COMMITTEE A

(Prepared by the Insurance Committee—John Blank, M.D., Chairman. Submitted by the Commission on Sociology and Economics.)

Catastrophic Liability Coverage

Resolved, That the House of Delegates adopt the Catastrophic Liability coverage as underwritten by the Pacific Employers Insurance Company, a subsidiary of INA and administered by Mr. Ed Gund, Group Plans Agency, Inc.

RESOLUTION NO. 32

REFERENCE COMMITTEE A

(Prepared by the Insurance Committee. Submitted by the Commission on Sociology and Economics.)

Deferred Compensation Plan

WHEREAS, The House of Delegates in 1968 charged the Commission for Sociology and Economics to continue reviewing the deferred compensation plan; and

WHEREAS, This task was assigned to the Insurance Committee; therefore be it

Resolved, That the Kansas Medical Society does hereby adopt the "Kansas Medical Society's Deposit Administration Group Annuity Contract" approved through Great Plains Life of Wichita, Kansas, and the "Kansas Medical Society's Deferred Compensation Contract for all Participating Physicians" as provided by Mr. Murray Hardesty, Tax Attorney, Topeka, Kansas, with "Security Equity" the mutual fund sponsored by Security Benefit Life of Topeka, Kansas, as the primary equity investment media, and does hereby instruct Blue Shield to adopt the same, and be it further

Resolved, That the Medical Society by its adoption of the above program is not in any way endorsing this deferred compensation plan, nor guaranteeing nor implying that any physician who participates will obtain any income tax saving or deduction, but is merely making the program available to the large number of qualified physicians in the state of Kansas that would benefit therefrom.

It is understood that the participant, not the Society nor the insurance company, will, under this plan, be responsible for all legal defenses should an IRS litigation result.

RESOLUTION NO. 33

REFERENCE COMMITTEE B

(Prepared by the Blue Shield Relations Committee)

Itinerant Surgery

WHEREAS, Blue Shield has requested guidance from the Kansas Medical Society on the question of itinerant surgery, be it

Resolved, That the following addendum to the Prevailing Charge Policy Statement adopted in Resolution No. 55, May 1968, be adopted by the House of Delegates:

"In surgical cases, when the routine part of pre- and postoperative care is provided by a physician

other than the surgeon, it is agreed that each physician bill his customary charge for the services he performs and that Blue Shield payment under the Prevailing Charge Plan be the range maximum applicable to the surgical procedure performed, or the sum of the charges, whichever is the lesser amount.

"It is understood that no additional charge is to be made to the subscriber by either physician.

"It is also understood that atypical cases are subject to individual consideration."

RESOLUTION NO. 34

REFERENCE COMMITTEE B

(Prepared by the Blue Shield Relations Committee)

Out-of-State Blue Shield Subscribers

WHEREAS, Blue Shield Participating Physicians in Kansas accept the policies and payment principles of the Kansas Blue Shield Prevailing Charge Plan; and

WHEREAS, Other Blue Shield Plans are rapidly developing full service benefit programs; and

WHEREAS, Blue Shield would be strengthened nationally by developing reciprocal arrangements to assure subscribers of all full service Plans predictability of coverage; therefore be it

Resolved, That the Participating Physicians of Kansas Blue Shield agree to provide services to out-of-state Blue Shield subscribers who are covered by full service programs under the same policies applicable to Kansas subscribers; and be it further

Resolved, That this policy take effect upon approval by the House of Delegates of the Kansas Medical Society, provided appropriate arrangements are made by other Blue Shield Plans to make direct payment to Kansas Participating Physicians.

NECROLOGY REPORT

Following is a list of members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates.

<i>Name and Address</i>	<i>Age</i>	<i>1968</i>
Guy E. Finkle, <i>McPherson</i>	70	April 9
William G. Weston, <i>Arkansas City</i>	67	April 27
Mary E. Evans, <i>Overland Park</i>	46	May 10
Ralph L. Eslick, <i>Winfield</i>	52	June 8
Fred J. McEwen, <i>Wichita</i>	74	July 6
Frank James, <i>Galena</i>	85	July 11
Albert W. Schmidt, <i>Lyons</i>	78	July 24
R. W. VanDeventer, <i>Wellington</i>	80	Aug. 1
Frank G. H. Meckfessel, <i>Kinsley</i>	89	Aug. 25
Robert M. Carr, <i>Junction City</i>	61	Aug. 28
Floyd C. Taggart, <i>Topeka</i>	66	Sept. 6
Roosevelt Leonard, <i>Lyons</i>	68	Sept. 9
Walter Stephenson, <i>Norton</i>	80	Oct. 5
R. Russell Cave, <i>Manhattan</i>	81	Oct. 30
Raymond G. House, <i>Wichita</i>	82	Dec. 1
Dale U. Loyd, <i>Wichita</i>	53	Dec. 12
Leo K. Crumpacker, <i>Wichita</i>	62	Dec. 13
Emmet N. McCusker, <i>Halstead</i>	51	Dec. 15
William V. Hartman, <i>Pittsburg</i>	86	Dec. 24
		1969
John H. Schrant, <i>Hutchinson</i>	92	Jan. 20
Martin Mehrle, <i>Pittsburg</i>	85	Jan. 27
Donald A. Kendall, <i>Great Bend</i>	65	Feb. 6
James M. Mott, <i>Topeka</i>	76	Mar. 23

House of Delegates

Sunday—May 4

3:00 p.m.—Dover and Portsmouth Rooms

Wednesday—May 7

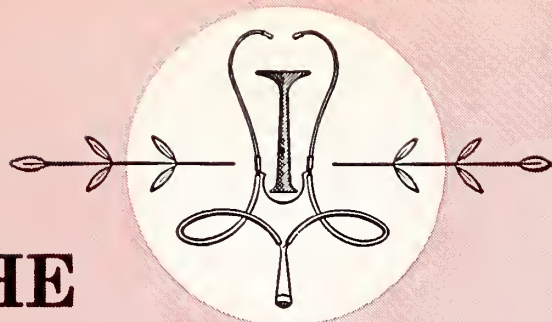
9:30 a.m.—Dover and Portsmouth Rooms

Reference Committees

Monday—May 5—8:00 a.m.

Committee A—Portsmouth Room

Committee B—Dover Room



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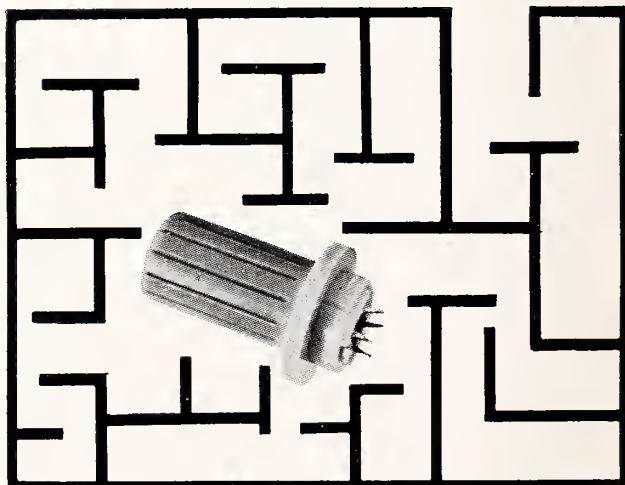
THE LATTIMORE-FINK LABORATORIES

Topeka, Kansas

A. A. Fink, M.D., Pathologist-Director
C. G. Hermann, M.D., Pathologist
W. W. Scamman, M.D., Pathologist
Antonio Huaman, M.D., Pathologist
H. C. Ebendorf, M.T., Serologist
L. A. Hull, A.B. & M.T., Bacteriologist
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The JOURNAL of the KANSAS MEDICAL SOCIETY

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Short Bowel Syndrome

A Comprehensive Approach to Patient Management—Part I: Pathophysiology Following Massive Intestinal Resection

DOUGLAS WILMORE, M.D.,* *Philadelphia, Pennsylvania*

MOST COMPONENTS OF the gastrointestinal tract can be removed without serious complications, but total resection of the small intestine is incompatible with life. Intestinal resection is frequently necessary with regional enteritis, arterial or venous occlusion, abdominal trauma, congenital malformations, mid-gut volvulus or extensive neoplasia. Because these disease processes effect the bowel in a segmental, localized or confluent manner, subtotal resection is usually performed. Patients who survive removal of 50 per cent of the small bowel can live relatively normal lives. However, serious metabolic complications may occur after massive intestinal resection leaving less than ten feet of small intestine. Severe diarrhea, dehydration, hypovolemia, acidosis, electrolyte imbalance, renal failure, steatorrhea, weight loss and cachexia characterize the gastrointestinal insufficiency of the short bowel syndrome.

Adequate nutritional support is essential for the survival and rehabilitation of patients after massive intestinal resection. Use of special dietary techniques and ancillary operative procedures, properly integrated into the postoperative clinical management, increases the efficiency of the intestinal remnant, aiding patient rehabilitation and restoration to pro-

Massive small bowel resection is a clinical catastrophe. Rehabilitation of patients with the short bowel syndrome is possible by careful evaluation of the intestinal absorptive defects and use of special dietary techniques to satisfy nutritional requirements. Adequate time for bowel compensation should be allowed before ancillary operative procedures are considered.

ductive life. This communication reviews the complications and treatment of the short bowel syndrome and presents a method of approach in the care and management of patients after massive intestinal resection.

Effects of Extensive Resection of Small Intestine

EFFECT ON ABSORPTIVE CAPACITY

The metabolic defects resulting from massive small bowel resection are related to the location and extent of resected bowel. Borgström showed by intestinal intubation studies in humans that absorption of carbohydrate, protein and simple fatty acids be-

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gins in the duodenum and is complete in the first 100 cm of jejunum. Studies in patients after massive bowel resection demonstrate that carbohydrate absorption is normal or only slightly impaired after enterectomy. Extensive resections which encroach upon the upper jejunum may limit carbohydrate absorption, as demonstrated by the flat glucose tolerance curve obtained after oral glucose administration. However, simultaneous analysis of plasma insulin demonstrates a near-normal insulin response curve, suggesting prompt absorption of the glucose followed by rapid utilization in the liver. Finally, use of the non-metabolized sugar 3-0 methyl glucose, which is actively transported from the bowel lumen and excreted in the urine, demonstrates that adequate glucose absorption occurs, even after the most extensive resections. Intravenous glucose tolerance curves characteristically remain normal. Fecal carbohydrate loss is negligible, but unabsorbed glucose may be metabolized by the colonic flora.

Protein absorption is impaired in proportion to the amount of bowel resected. In normal human subjects, the digestion products of I¹³¹ labeled human serum albumin and milk proteins were 90 per cent absorbed by the time the proximal 100 cm of jejunum was traversed. Encroachment upon this highly specialized absorptive surface area results in a decrease in the absorption of amino acids. In patients with extensive intestinal resection, fecal nitrogen loss may correlate closely with the stool volume. The laboratory and clinical demonstration that transit time is directly related to the absorption of water and nitrogen from the bowel lumen explains this relationship. Both fecal nitrogen loss and stool volume can be reduced by prolonging intestinal transit. The normal ratio of nitrogen loss (approximately 90 per cent in the urine and 10 per cent in the feces) is often abnormal or reversed in the short bowel patient.

Nitrogen equilibrium can be achieved in the normal individual with a daily protein intake of 40-50 gm, when accompanied by an adequate caloric intake. With minimal protein intake, adaptation of enzymatic systems in the liver and kidney allows conservation of body nitrogen and reutilization of urea. In patients with the short bowel syndrome, oral intake of two to three times the required quantity of protein may be necessary to achieve effective absorption of the safe minimal requirements of nitrogen. Positive nitrogen balance can only be achieved with the adequate provision of all required nutrients and energy to allow normal metabolism and permit tissue synthesis.

Fat utilization is characteristically poor after massive intestinal resection. Most fecal fat is in the form of free fatty acids rather than neutral fat, suggesting normal digestion of triglycerides but inadequate ab-

sorption. Several investigators have noted that steatorrhea is far greater with resection of the terminal ileum when compared with resection of the upper small intestine. Simple fatty acids may be totally absorbed in the upper small intestine without difficulty, and the explanation for fat malabsorption after ileal resection was unclear. The demonstration by Lack and Weiner that the terminal ileum was the major site of uptake of bile salts needed to emulsify fat particles, seemed to partially explain the fat malabsorption after loss of the distal small bowel. In addition, fat and cholesterol absorption is related to transit time and postresection diarrhea may be more severe with resection of the distal bowel and ileocecal valve.

A constant relationship has been demonstrated between dietary fat intake and fecal fat loss in patients with massive small bowel resections. Increasing dietary fats results in no improvement in the percentage of fat absorbed. A moderate or high fat intake will result in increased stool bulk associated with loss of water, electrolytes and nitrogen. Low fat, high carbohydrate, high protein feedings have proven to be the most effective and palatable diets for the support of patients with the short bowel syndrome.

While vitamin absorption from the intestinal remnant is usually normal, a few documented clinical deficiencies of fat and water soluble vitamins have been reported. However, deficiencies of vitamin B₁₂, which is absorbed exclusively in the distal bowel, are common. Ileal resection removes the receptor sites for absorption of this hematinic vitamin, resulting in gradual depletion of the body stores and development of clinical symptoms as long as three to five years after operation. Parenteral administration of vitamin B₁₂ is essential after removal of the distal small intestine.

Neutral fats are broken down to fatty acids in the bowel lumen with a high percentage of fat unabsorbed and lost in the stool. Chemical bonding between fatty acids and dietary calcium and magnesium occurs in the intestinal lumen, forming insoluble and, therefore, unabsorbable soaps. Negative calcium and magnesium balance may result, and clinical deficiencies associated with lethargy, seizures activity and personality disorders have all been reported. Positive mineral balance is achieved by supplementing oral intake of calcium and magnesium, decreasing ingestion of dietary fat or administering these minerals by the parenteral route.

EFFECT ON RENAL FUNCTION AND FLUID AND ELECTROLYTE BALANCE

Severe diarrhea associated with fluid and electrolyte imbalance may be the most disabling symptom of the patient with the short bowel syndrome. Loss

of small bowel absorptive surface area may explain the excessive fluid loss, but additional factors play a contributory role. High osmolality of the luminal contents, large volume and bulk of ingested food-stuffs and the stimulatory effect of fatty acids and bile salts increase peristalsis and decrease transit time, contributing to fluid and electrolyte loss. Prolongation of the transit time by a variety of methods increases fluid and electrolyte absorption.

Excessive loss of water from the gastrointestinal tract results in a decrease in glomerular filtration rate and daily urine output, contributing to permanent renal damage. Hyponatremia, hypokalemia and metabolic acidosis characteristically occur after the loss of electrolyte rich intestinal fluid from the distal bowel. Sodium and water depletion is a prime stimulus for aldosterone secretion, causing maximal renal salt conservation. Intermittent hypokalemia may present as skeletal muscle paralysis, anorexia, nausea, vomiting, paralytic ileus and cardiac arrhythmias. In addition, chronic potassium depletion limits protein synthesis, impairs carbohydrate transport and utilization, and allows development of hypokalemic nephropathy, another factor contributing to renal impairment.

Fixed base loss from the gastrointestinal tract may result in excretion of a persistently acid urine. This eliminates the expected morning and post-prandial urinary "alkaline tides," a finding similar to the urine pH seen in patients with primary gout. Persistent urine acidity and low urine output may contribute to the increased incidence of hyperuricemia and uric acid calculi in patients with chronic diarrhea. These alterations in metabolism increase the likelihood of irreversible renal damage secondary to hyperuricemia in short bowel patients.

ENERGY EXPENDITURE, WEIGHT AND ACTIVITY

If absorption of the required nitrogen and calories is insufficient, a gradual weight loss ensues. With a marginal intestinal absorptive surface area, weight stabilization at a suboptimal level will occur. This phenomenon is similar to the weight loss and readjustment seen in clinical research patients after consuming diets deficient in nitrogen and calories. With a decrease in lean body mass, there is a decrease in daily caloric expenditure, an important mechanism in energy conservation. Total energy expenditure, as calculated from indirect calorimetry or extrapolated from a simple BMR, is decreased in all patients who demonstrate weight loss after massive resection. With a decrease in available energy, there is a reduction in motor activity, conservation of body motion and the inability to perform tasks requiring large energy expenditure.

GASTRIC SECRETION

It is well known that the small bowel participates in the regulation of gastric acid secretion. In 1904, Sokolov showed that gastric acid output was inhibited in Pavlov pouch dogs with the introduction of gastric juice into the duodenum. Removal of the duodenum, jejunum or ileum in experimental animals quantitatively removes this intestinal regulatory mechanism, resulting in an increase in gastric acid secretion. Moreover, a rough correlation exists between the amount of gastric acid secreted and the extent of small bowel resected. While the exact mechanism of this relationship is not known, animal studies have demonstrated that postenterectomy gastric hypersecretion can be reduced by vagotomy. The subsequent reduction in the gastric acid allows an increase in pH of the duodenal contents, enhancing optimal enzyme function and promoting maximal digestion and absorption in the upper small bowel.

In humans, gastric hyperacidity has not been consistently demonstrated after massive resection, although a few cases of postresection gastric hypersecretion have been documented. To date, successful rehabilitation of many patients with the short bowel syndrome has not required pyloroplasty and vagotomy. The degree that this gastric hypersecretory phenomenon may occur or contribute to inefficient absorption is still unknown. However, the demonstration of severe diarrhea following enteral feeding, associated with gastric hypersecretion, should indicate pharmacologic or surgical inhibition of the gastric secretory response. It should be emphasized that accurate gastric secretory data can only be obtained under stable basal conditions. The relationship between intravenous fluid and electrolyte administration and gastric secretory output is well known. Equilibration of body fluids and electrolytes is essential before an accurate gastric analysis can be obtained. The effects of drug suppression on gastric acid secretion (medical vagotomy) should be evaluated before an operative procedure is planned.

Mechanisms of Bowel Compensation

Following massive intestinal resection, small bowel function improves with time. Patients with severe postoperative diarrhea after small bowel resection usually demonstrate spontaneous improvement even without specific therapy. There is a progressive reduction in the frequency of bowel movements accompanied by changes in the character of the stool (*Figure 1*). With time, small bowel function tests demonstrate enhancement of absorption from the intestinal remnant, with an increase in carbohydrate absorption and a decrease in fecal nitrogen and fat. After several months, dietary restrictions may be re-

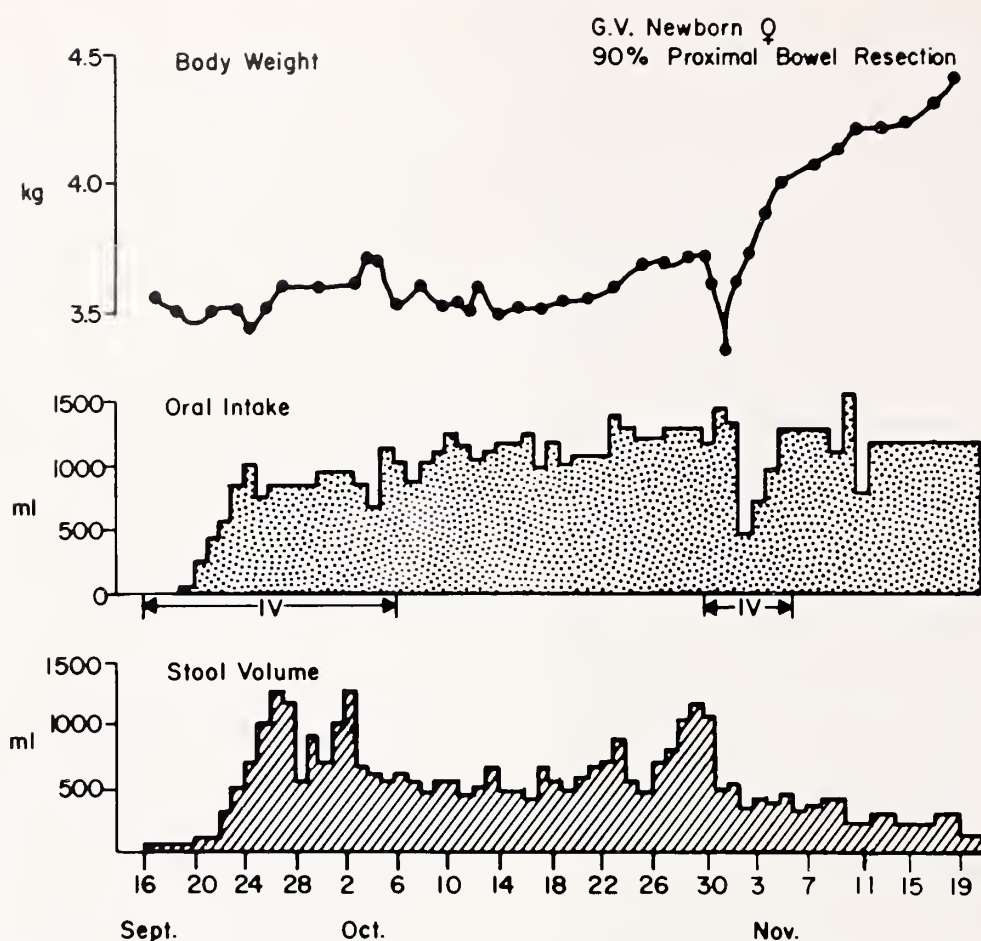


Figure 1. Severe watery diarrhea followed 90 per cent small bowel resection in this infant with mid-gut volvulus. Bowel compensation and adaptation occurred with time, demonstrated by a decrease in stool volume, formation of semi-solid feces, increase in intestinal absorption and dramatic weight gain.

laxed without ill effect, providing a more palatable diet for the patient.

Morphological changes of the intestinal remnant explain, in part, the mechanisms of small bowel compensation. Structural adaptation includes dilatation and lengthening of the remaining segment, hypertrophy of the intestinal wall and elongation of the mucosal folds. There is an increase in small bowel diameter and intestinal weight per unit length, accompanied by hypertrophy of the villi. Topographical measurements of the villi and small bowel surface area document an increase in total absorptive surface of up to 400 per cent. Associated with villous hypertrophy is increased villous cellularity (an increase of the number of cells per each villous), a mechanism which provides more receptor sites for enzymatic transport of essential nutrients across the mucosal surface. As a result, there is good correlation between villous height in the small bowel remnant and the quantity of nutrients absorbed.

What factors contribute to the morphologic hyper-

trophy of the small bowel remnant? Nutrients in the intestinal lumen can be utilized directly in the metabolism of mucosal epithelial cells, thus influencing mucosal growth. The differences in nutrient concentration in the intestinal lumen may explain the differences between the elongated villi in the upper intestine and the short stubby villi of the distal bowel. By interposing a segment of the ileum into the mid-jejunum, the short villi of the ileum are exposed to an increased concentration of nutrients resulting in villous hypertrophy. The mucosa of the ileal segment becomes indistinguishable from the mucosa of the adjacent jejunum. Villous hypertrophy also occurs in hyperphagic animals, a state which allows the mucosa to be exposed to an increased concentration of nutrients in the intestinal lumen. The corollary to this theory states that mucosal atrophy should take place when the villi are not exposed to "topical nutrients," and this occurs in the intestine that has been by-passed or short circuited from the flow of foodstuffs.

In spite of this evidence, other factors play a role in bowel hypertrophy and adaptation. It is well established that growth hormone stimulates bowel growth, increases intestinal weight, and accelerates the mitotic rate of the small bowel villi. Growth hormone secretion is stimulated by fasting or starvation, physiologic states which occur with postenterectomy malabsorption. The end-organ effect of growth hormone on the bowel could enhance villous hypertrophy, thereby increasing the absorptive surface area of the remaining intestine. However, all essential nutrients must be available for this growth phenomenon to occur. If intestinal absorption is inadequate and body stores depleted, villous growth and intestinal compensation would be limited by the unavailability of nutrients, in spite of maximal growth hormone stimulation. If all essential nutrients are present, bowel adaptation could occur, providing an adequate absorptive surface area to meet the total body nutritional requirements. Proof that a trophic factor can adjust gut structure and function to meet the needs of the organism is suggested in experimental work, but extensive research is required to understand the control mechanism and isolate the mediators of this servo system.

In addition to the morphologic changes of the intestine, physiologic adaptation occurs, allowing more efficient use of the limited bowel surface area. The stomach may become dilated and develop a delayed emptying pattern which introduces nutrients into the duodenum at a constant rate and at isotonic

concentration. Small bowel peristalsis disappears and is replaced by a churning, to and fro activity. This type of intestinal motility prolongs transit time and increases contact between nutrients and the absorptive surface area of the bowel remnant.

The stomach and colon may participate in the absorption of some nutrients, primarily glucose and amino acids. Simple diffusion of these molecules across mucosal surfaces is possible, but the absence of active transport systems limits the quantity of nutrients that can be absorbed. "Intestinalization" of the colon is an adaptive phenomenon that has been proposed, but not documented. In fact, preliminary data suggests that cellular transport of glucose and amino acids is the same across colonic mucosa of normal and enterectomized animals. However, altered metabolism occurs in the colon in the form of bacterial fermentation. Unabsorbed glucose and amino acids pass from the small intestine into the colon and support a large colony of bacteria and fungi. Nutrients are broken down to simple constituents, a process similar to the metabolic events which occur in the stomach of ruminants, and these compounds may be absorbed from the colon by simple diffusion. The main complication resulting from fermentation in the colon is the production of large quantities of gas, contributing to problems of patient socialization and rehabilitation. (To be continued next month.)

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.

KMS MEMBERSHIP DIRECTORY—1969

The 1969 Membership Directory will be printed in July. It would be helpful if you would check your listing in the 1968 directory. If the information is incorrect, or if you have recently become a member of the Kansas Medical Society and were not listed last year, please notify the Society office in Topeka.

Membership listings include: name, address, telephone number, year of birth, sex, medical school, year of license and specialty.

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Repairing Blowout Fractures

Advantages of the Orbital Approach to Pure Blowout Fractures of the Orbit

LOWELL W. WILDER, M.D.,* *Wichita, and*
BYRON SMITH, M.D.,** *New York City*

BLOWOUT FRACTURES OF THE ORBIT are common occurrences and are frequently associated with automobile accidents, well thrown fists, and poorly fielded baseballs. Any object with a corresponding size or shape to the orbital rim may cause this type of fracture. The purpose of this paper is to stress the advantages of the orbital approach in the repair of blowout fractures over the antral approach.

In the pure blowout fracture, the bones of the face and of the orbital rim are intact. The cardinal findings are a vertical muscle imbalance manifested by diplopia, enophthalmos, and anesthesia below the eye. Other associated findings may be severe edema of the lids, ptosis, subconjunctival hemorrhage, unilateral epistaxis, orbital hematoma, and occasionally intraocular damage. A complete ophthalmologic examination is essential initially and periodically during the follow-up period. It must be stressed that the visual acuity should be recorded, especially just prior to surgery. When the diagnosis has been established, the treatment is surgical. If there is considerable tissue reaction, several days of observation is advisable. In order to prevent complications from fibrosis, surgery should be undertaken within seven days of the injury.

In planning surgery there are basically two approaches, the orbital and antral. The transcutaneous infraorbital approach is through an incision below the margin of the lower lid in a natural lid fold. If the incision is limited to the outer two thirds of the lid, it will not interfere with the integrity of the lacrimal pump. The orbicularis fibers are split and the incision is extended down to the orbital rim without penetrating the orbital septum. The periosteum is incised along the rim and freed with a periosteal elevator. The periosteum can then be easily peeled from the floor posteriorly to the fracture site. This affords direct visualization of the fracture and of the incarcerated structures. The prolapsed and in-

carcerated orbital tissue can then be reduced. A duction test of the inferior rectus muscle confirms that it is free. After the structures have been reduced, a synthetic plate is inserted between the orbital floor and periosteum to cover the fracture. The wound is closed in two layers, periosteum and skin. As soon as the patient is fully alert, ambulation is recommended.

In the antral approach, the maxillary antrum is

Pure blowout fractures of the orbit are common occurrences. The transcutaneous infraorbital approach to the fracture is preferable to the antral approach. The main advantages of the orbital approach are that the procedure is performed under direct visualization and a synthetic plate is easily inserted preventing fibrosis of the ocular structures to the fracture site and providing permanent support to the orbital floor. There is assurance that the inferior rectus muscle, the inferior oblique muscle, and the orbital fat have been completely removed from the fracture by using the orbital approach.

entered through the canine fossa using the Caldwell-Luc technique. The gingiva is incised and periosteum is elevated. A window is made into the maxillary antrum and enlarged to a size which permits visualization of the antral roof and orbital fracture. The incarcerated tissue is pushed back up into the orbit. A duction test indicates freedom of the inferior rectus muscle. An intranasal antrostomy is advisable. The canal of the nasolacrimal duct should be avoided. After the fracture appears to be completely reduced, the antrum is packed with an antibiotic impregnated gauze, or a balloon is inflated to support the orbital floor. Systemic antibiotics are generally administered to prevent orbital infection

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due to contamination by the bacteria normally found in the antrum. The patient can be ambulated as soon as alert. As bone healing takes a minimum of 10 to 14 days, the antral packing should be left in place at least this long. The patient may be kept in the hospital until the packing is removed or may be discharged earlier and have the packing removed in the office.

The main advantage of the orbital approach is that the tissue can be removed under direct visualization and the operator can see that all of the tissue has been reduced. In the antral approach there is more chance of injuring the incarcerated structures with the sharp bone fragments. Many blowout fractures are hinged like a trap door and as this flap of bone is pushed up from the antrum, there is no assurance that the extraocular tissues are completely freed from the bony margins. Also, as the tissues are pushed up from the antrum, bony fragments may be pushed into the orbit causing lacerations of the inferior rectus muscle, the inferior oblique muscle, and the nerve to the inferior oblique muscle. These fragments of bone can be easily removed from the orbital approach before manipulation of the prolapsed tissue.

There is a significant proportion of blowout fractures which are linear. The antral mucosa is intact, the antrum is radiologically clear, but the inferior rectus muscle is pinched within a crack in the orbital floor. If approached through the antrum, the orbital floor would have to be further fractured in order to release the muscle.

The use of a thin synthetic plate, such as Supramid or Teflon, has two advantages. The plate supports the floor during the entire period of bone healing and prevents the orbital structures from becoming incorporated in the fibrotic healing process at the fracture site. Incorporation of these structures would nullify the reduction. These synthetic materials are well tolerated in the orbit permanently and will not migrate if custom fitted to the fracture site.

After the orbital repair, patients are ready for discharge by the second or third postoperative day, but may even go home as early as the first postoperative day. On the other hand, by using the antral approach, the patient usually remains in the hospital until the packing is removed. As the packing is withdrawn, fragments of the fracture may be pulled down with the packing, thus providing a situation for recurrent prolapse of orbital structures. All postoperative patients should have an ophthalmologic examination of the internal eye and ocular muscle balance.

References

1. Anthony, D. H.: Diagnosis and surgical treatment of fractures of the orbit. *Trans. Am. Acad. Ophth.* 56:580, 1960.
2. Converse, J. M. and Smith, B.: Blowout fracture of the floor of the orbit. *Trans. Am. Acad. Ophth.* 64:767, 1960.
3. Converse, J. M. and Smith, B.: Blowout fracture of the floor of the orbit. *Surg. Ophth.* 7:304, 1962.
4. Erdbrink, W. L.: Blowout fracture of the orbit. *Am. J. Ophth.* 49:1037, 1960.
5. Goren, S. B., Shauss, R. B. and Osborn, D. B.: Blowout fracture of the orbital floor. *Am. J. Ophth.* 61:893, 1966.
6. Obear, Margaret F.: Personal communication.
7. Smith, B. and Regan, W.: Blowout fracture of the orbit. *Am. J. Ophth.* 44:733, 1957.
8. Smith, B. and Converse, J. M.: Early treatment of orbital floor fractures. *Tr. Am. Acad. Ophth.* 61:602, 1957.
9. Wilder, L. W.: Blowout fractures of the orbit. *Penn. Med.* 71:37, 1968.

NEW YORK CITY IS SITE OF AMA'S 1969 ANNUAL CONVENTION

CHICAGO—New York City is the site of the American Medical Association's 118th Annual Convention, July 13 through 17.

The nation's largest city has been host to two AMA annual conventions in this decade—in 1961 and 1965—and attendance at each exceeded 60,000.

A total registration of 60,000 is predicted for the 1969 convention, including some 22,500 physicians. Medical students, nurses and other members of allied medical professions, industrial exhibitors, and guests make up the rest of the registrants.

Four general scientific sessions are planned:

- Human Sexuality
- Physical Fitness and Aging
- Impact of Medical Education on Patient Care
- Chronic Pulmonary Insufficiency and Air Pollution Problems

Each of 22 scientific sections also will present a program. The 23rd section—on special topics—plans six sessions:

- Drug Utilization (in cooperation with AMA's Council on Drugs)
- Mental Health Dynamics in the Pre-School Child (in cooperation with AMA's Council on Mental Health)
- Disaster Planning for Aviation Accidents (in cooperation with AMA's Committee on Disaster Medical Care)
- Neurological Surgery
- Nuclear Medicine
- Plastic and Maxillofacial Surgery

The May 26 issue of *The Journal of the American Medical Association* will list the entire scientific program.

Permanent Transvenous Pacing . . .

. . . in a Patient with Drug Resistant Ventricular Arrhythmias

MICHAEL BERNREITER, M.D., F.A.C.P.,* *Kansas City, Missouri*

ONE OF THE GREATEST PROBLEMS in medicine is the repetitive drug resistant ventricular arrhythmia. Since there is a paucity of information in the treatment of this serious problem, not associated with atrioventricular block, the following case in which transvenous pacing was perhaps life-saving is reported. The use of this specific therapy so far has been reported in nine cases.¹⁻³

Patient Summary

A 76-year-old woman was admitted to the hospital on June 4, 1968, with the chief complaint of ankle swelling and dyspnea on exertion. For ten years she had had hypertension and cardiac murmurs. Cholecystectomy was done in 1950 and a pelvic repair in 1951. Several episodes of auricular fibrillation occurred in the past and these were usually controlled with digitalis and quinidine. Electrocardiograms in the past showed frequent ventricular premature contractions, some of them occurring during the vulnerable period of the cardiac cycle. On admission, the electrocardiogram (*Figure 1*) was not definitely abnormal. A laboratory survey was essentially within normal limits with the exception of a mild hypokalemia—3.5 mEq, calcium 8.2 mEq and uric acid 11.3 mg. X-ray reports revealed moderate cardiomegaly and arteriosclerotic changes in the aorta. The blood pressure was 170/90. A loud, rough, systolic murmur was heard over the entire precordium, loudest over the aorta and extending to the neck vessels. The liver was not enlarged. There was no ascites. The lower extremities showed a 2 plus ankle edema. In less than 24 hours after admission the patient developed ventricular fibrillation (*Figure 2*) and was successfully resuscitated by external cardiac massage and electric countershock. Ventricular fibrillation occurred on nine different occasions within the first three weeks of hospitalization and were terminated with electric shock. Paroxysmal attacks of ventricular tachycardia (*Figures 3 and 4*)

occurred 20 times, nine of these being controlled with external cardiac massage and 11 converted to normal sinus mechanism without treatment. In spite of aggressive therapy, the rhythmic disturbances continued unabated and on June 25, 1968, a transvenous pacemaker was inserted through the saphenous vein on the left. This resolved the problem of ventricular irritability and a few days later the temporary pace-

A case in which repetitive ventricular arrhythmias, associated with frequent syncope seizures, were suppressed by permanent transvenous pacing is presented. The patient had a total of 29 episodes of ventricular tachycardia and ventricular fibrillation which have been completely controlled since the pacemaker was installed. Previously all attempts to terminate these potentially fatal arrhythmias with drugs and electrical countershocks were unsuccessful. At no time did the electrocardiograms show a serious form of atrioventricular block. The outcome in this case was successful, although an extremely serious situation presented itself before electric pacing was started.

maker was inserted through the jugular vein (*Figure 5*). The tip of the pacemaker was placed in the apex of the right ventricle. No further episodes of ventricular tachycardia or ventricular fibrillation occurred.

Comment

This patient failed to respond to vigorous and aggressive treatment with the usual antiarrhythmic drugs. Cardiac massage and electrical defibrillation was only temporarily successful in terminating the life-threatening arrhythmias. It seems unlikely that this patient would have survived without artificial

(Text continued on page 248)

* From the Department of Electrocardiography, St. Mary's Hospital, Kansas City, Mo.

Dr. Bernreiter is Associate Clinical Professor of Medicine (emeritus), University of Kansas Medical School.

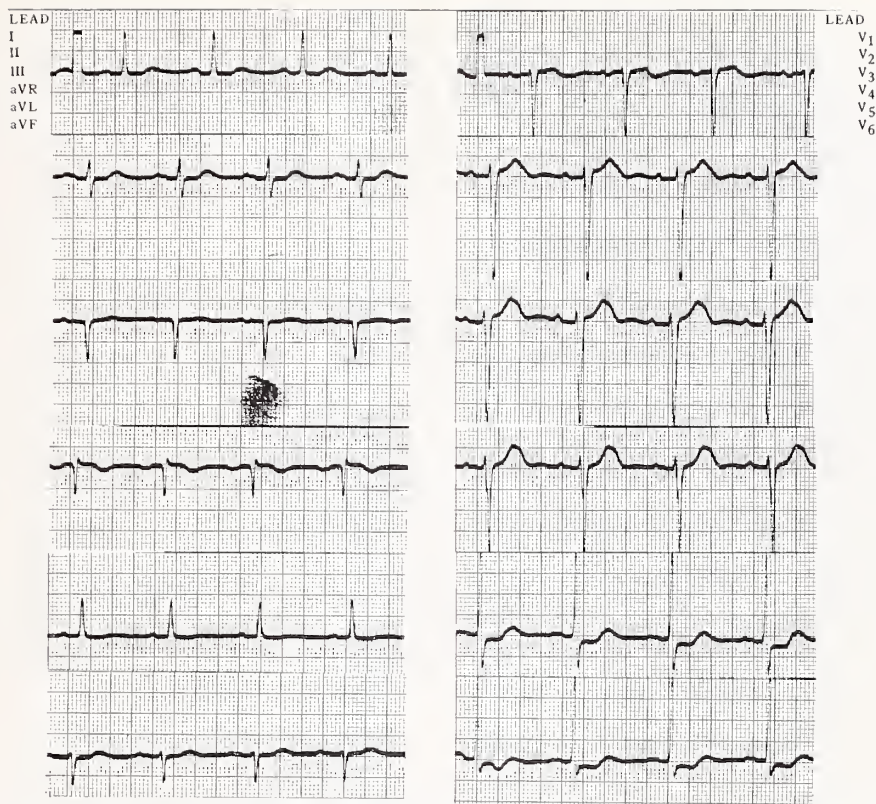


Figure 1. This electrocardiogram was taken on the day of admission to the hospital and is not definitely abnormal.

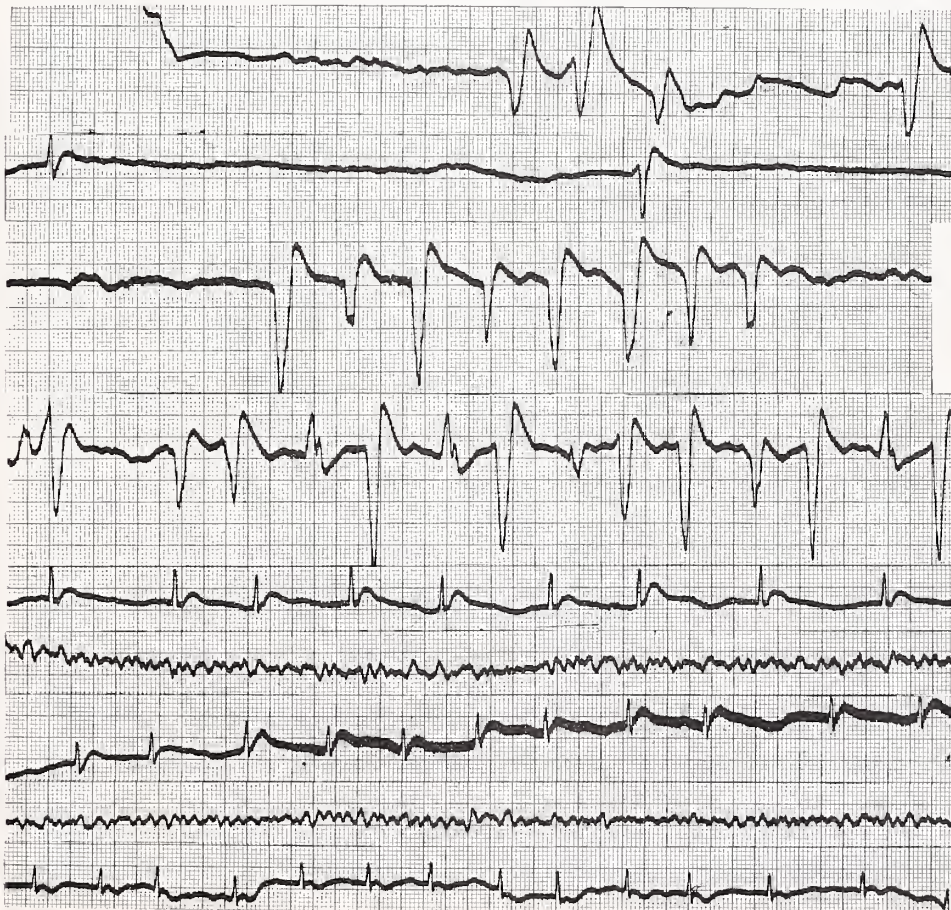


Figure 2. Within the first 24 hours after admission a severe myocardial irritability occurred, leading to ventricular fibrillation. This was terminated by electric countershock.

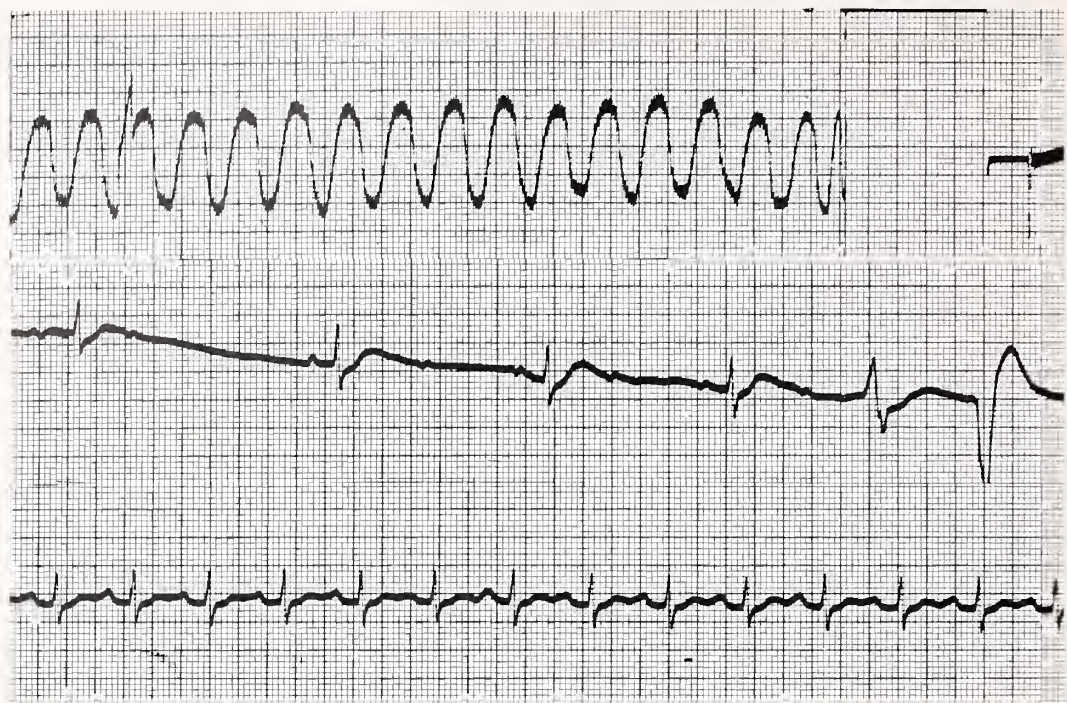


Figure 3. Short attack of ventricular fibrillation, terminated by external cardiac massage.

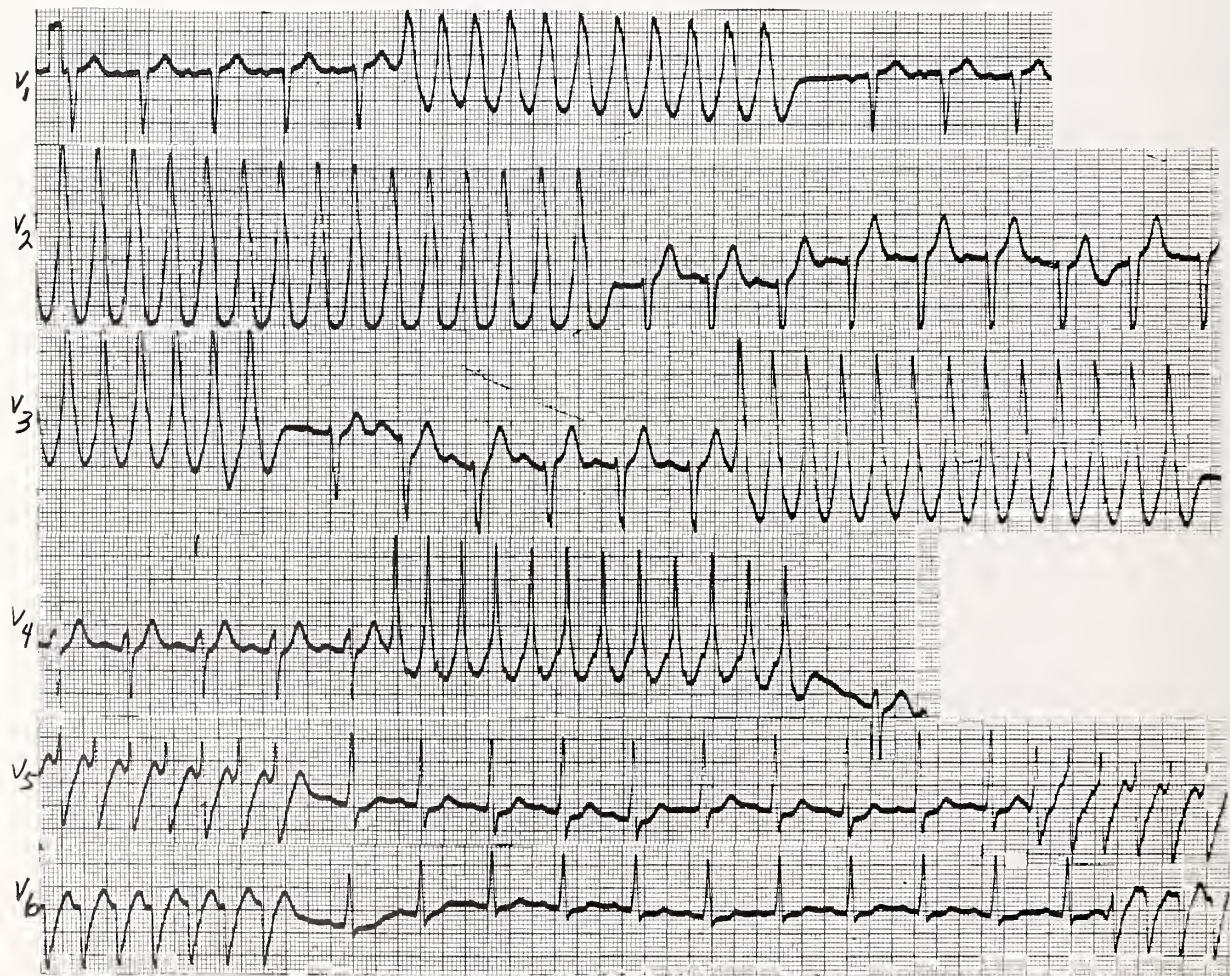


Figure 4. Repetitive attacks of ventricular tachycardia, self terminating. Note that most paroxysms start at the downstroke of the preceding T wave (vulnerable period of the cardiac cycle).

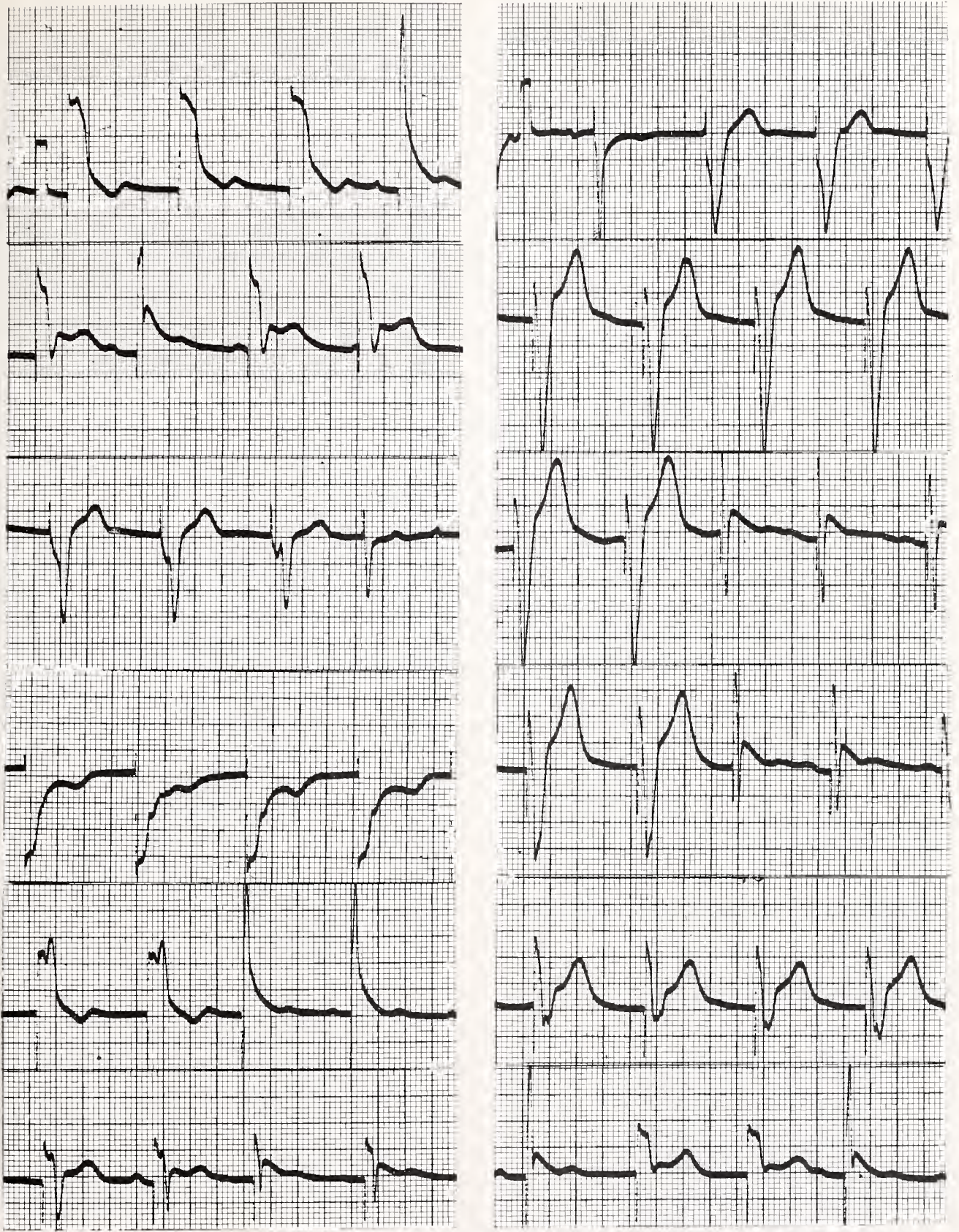
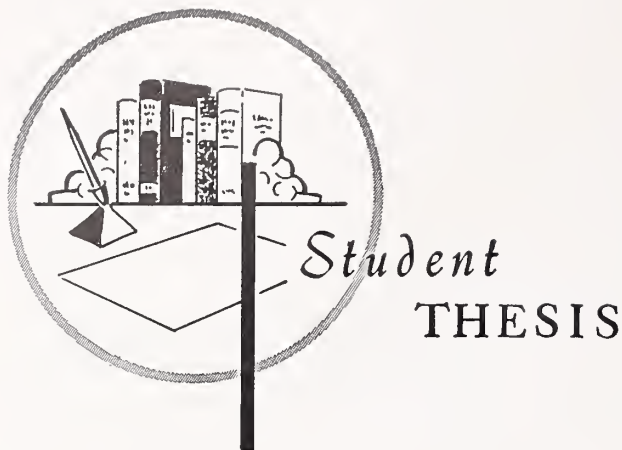


Figure 5. After installation of permanent transvenous pacemaker.



A Review of Thrombotic Thrombocytopenic Purpura

LAWRENCE K. MONAHAN, M.D.,* *Kansas City, Missouri*

AMONG THE HEMORRHAGIC DIATHESES (unusual constitutional susceptibilities or predispositions to spontaneous and excessive bleeding), a recently described disorder known as thrombotic thrombocytopenic purpura (TTP, Moschcowitz's Disease) is of increasing interest. A review of the etiologic, pathologic, clinical, and treatment aspects of this disease is presented.

Hemorrhagic diatheses and purpuras are seen under a host of circumstances, including abnormalities in both the vessels and the blood. The commonest causes of bleeding diatheses are the thrombocytopenias, in which are usually included the following major groups:

- A. Primary, idiopathic thrombocytopenic purpura (ITP)
- B. Secondary thrombocytopenias
 - 1. Decreased production
 - a. Myelophthesic diseases
 - b. Deficiency states
 - c. Aplasia
 - 2. Increased destruction
 - a. Hypersplenism
 - b. Stagnation of blood flow
 - c. Massive bank blood transfusion
 - d. Hypercoagulable states
 - e. Isoantibodies, isoimmune diseases
 - f. Autoantibodies, autoimmune or hypersensitivity diseases

Limits of current knowledge make it difficult to state with certainty the category in which TTP belongs. However, that category seems most likely to include abnormal vascular factors, plus elements of the hypersensitivity and hypercoagulable states.

According to Moschcowitz's original description in 1925, and by custom ever since, Thrombotic Thrombocytopenic Purpura (TTP) is defined as an acute or chronic illness which has a clinical triad of symptoms and signs:

1. A sudden disappearance of circulating platelets to insufficient levels (less than 50,000/mm), associated with the appearance of innumerable occlusions ("hyalin thrombi") of small vessels of many organs, causing purpura;
2. Severe hemolytic anemia;
3. Transitory and bizarre neurologic symptoms and signs.

Although this classical triad has stood the test of time, one or more of the three is absent 50 per cent of the time. Recently it has become obvious that two other symptoms are seen with similar regularity in TTP, which is now defined as a pentad of symptoms and signs including:

4. Fever, especially later in the course of the disease;
5. Renal disease symptoms of proteinuria, hematuria, azotemia, etc.

Theories of Etiology and Pathogenesis

Many etiologic theories have been advanced to explain the cause and nature of this complex disorder, TTP. And, to this date, no single one holds up under careful investigation. According to Mosch-

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Monahan is now in his first year of internal medicine residency at St. Luke's Hospital, Kansas City, Missouri.

cowitz's original platelet thrombosis hypothesis (1925), "TTP was thought to be due to a toxin capable of causing hemolysis and platelet agglutination with the production of vascular occlusions secondary to platelet thrombi." In other words, the following chain of events was hypothesized: The thrombi are made exclusively of platelets; the agglutination of platelets into thrombi leads to thrombocytopenia; thrombocytopenia with accompanying capillary thrombi causes an increased susceptibility to bleeding—and the purpura; purpura causes anemia; and as the extravasated blood is broken down, hyperbilirubinemia and jaundice result. The theory is tight within itself and stood unchallenged for many years. By differential staining techniques, the hyalin thrombi were identified as not being erythrocytes, leukocytes, collagen, lipid, hemosiderin, or hemoglobin. By these same techniques the thrombi were shown to contain at least platelets and fibrin. Indeed, it has been impossible with the light microscope to differentiate between the hyalin thrombi and sections of pure buttons of centrifuged human platelets. However, the thrombi are known to be both intraluminal and intramural. Can platelet thrombi penetrate vascular endothelium? Probably not; and, in addition, no toxins have ever been implicated with certainty in any reported case to substantiate Moschowitz's hypothesis.

The histologic changes of TTP are compatible with the assumption (above) that intravascular thrombosis is one pathogenic feature of the disease. Reports of concomitant hypofibrinogenemia and hypoprothrombinemia (favorably responsive to heparin therapy) do tend to support this concept. Other humoral coagulation factor deficits or excesses have also been reported.

Bacterial infection as a cause of TTP has been suggested, but is unlikely in view of only rare reports of positive blood cultures or significant abnormalities in other cultures. Etiologic roles of viruses have not yet been conclusively tested.

In 1966, Amorosi and Ultman stated, "A syndrome of anorexia, wasting, and jaundice with anemia and thrombocytopenia has been produced in rats fed a choline-rich high-fat diet. Histologic examination of tissues from many organs of these animals have revealed vascular lesions similar to those of TTP. What relationship, if any, these findings may have to the human disease is not known. There have been no reports of abnormal blood lipids in patients with TTP."

At various times it has been postulated that drug sensitivity plays an important etiologic role. Sulfonamides, penicillin, oxyphenarsine, iodine, gold, procaine, chlorpropamide, and quinine and its related compounds have apparently been administered for unrelated illnesses prior to development of symp-

toms of TTP. But in a vast majority of cases it is probable that the actual disease of TTP was initiated prior to treatment with these drugs.

The area of etiologic investigation most studied today is related to the hypersensitivity phenomena or autoimmune diseases. At least eight platelet agglutinin systems (similar to the erythrocyte and leukocyte agglutinogens) have been identified. It therefore seems reasonable to hypothesize platelet isoagglutinins or autoagglutinins (as yet unidentified in TTP) which may cause decreased production or release of platelets by bone marrow inhibition, or increased destruction of platelets by agglutination, sensitization, or lysing, as has been shown to be the case in Idiopathic Thrombocytopenic Purpura (ITP). The rarity of demonstrable platelet, erythrocyte, or leukocyte antibodies, appropriate abnormalities of serum proteins, and inability to transmit TTP by plasma cross-transfusions do not tend to support this hypothesis.

Another suggested possibility related to the hypersensitivity phenomenon is that TTP may represent a clinical example of the generalized Schwartzman reaction where vascular endothelium is the end-organ. Accordingly, this theory of etiology and pathogenesis would read as follows: Primary degenerative changes in the endothelium and vascular wall lead to aneurysm, destruction, or focal proliferation of the endothelium with or without thrombosis; these changes, together with fibrinoid necrosis and segmental accumulations of hyaline material beneath the endothelium, cause obliteration of the lumen or rupture of the endothelium; in either case, a hypercoagulable state results, forming thrombi which may then propagate along the vessels, causing further destruction of the endothelium and a repetition of the cycle; at every step platelets agglutinate in the coagulation process, eventually leading to thrombocytopenia and a mechanical hemolytic anemia; thus, transfused cells are also damaged at a rapid rate. The histopathology of the vascular walls does give a picture of fibrinoid necrosis, as do SLE and polyarteritis nodosa. Indeed, TTP, SLE, and polyarteritis nodosa occasionally appear in the same patient; and in these cases there is also a high incidence among other family members of one of the three diseases. According to this theory then, is TTP a graded expression of a similar hypersensitivity autoimmune process as SLE and polyarteritis? However, pure SLE and polyarteritis are infrequently accompanied by hemolytic anemia; the three differ significantly in sex incidence, duration, course, complications, prognosis, response to treatment, and other aspects of the pathology.

There is no consistent parallelism between damage to vessels, extent of thrombosis, degree of thrombocytopenia or anemia, and extent of purpura. The

question is therefore raised as to whether or not the etiology is a single one, and TTP only a single disease. The semi-diagnostic hyalin thrombi may also be seen in patients with severe burns, mercury poisoning, leukemia, malignant tumors, rickettsial diseases, and others.

In the end, there seems to be insufficient knowledge and accumulated research on the three hundred or so reported cases of TTP to settle on one explanation of its etiology, and its pathogenesis is only incompletely and poorly understood. However, it does seem unlikely that its etiology is a single causative factor.

Pathology-Histology

Histologically, the hallmark of TTP is the presence of innumerable complete or incomplete occlusions of small arteries, arterioles, especially arteriole-capillary junctions, and capillaries by an acellular, amorphous or granular eosinophilic material. These occlusions have usually been called "hyalin thrombi," because of the glossy, homogeneous, eosinophilic material commonly described by the term "hyalin." There is serious question, though, whether or not the term "thrombi" is representative, since it is clear that these hyalin masses occur both intraluminally and intramurally. Fibrinoid necrosis identical to that characteristically seen in SLE and polyarteritis nodosa is seen with regularity. There is, however, a striking absence of vascular and perivascular inflammatory reaction in TTP, differing in this respect from thrombi seen in many other diseases. The precise nature of these hyalin thrombi is not known, although the many theories have been discussed at length under etiology and pathogenesis. Whatever their nature, they occur in various stages of aging. Recent ones appear more granular, older ones more compact, shrunken, darker colored, perhaps recanalized.

The other pathological feature of TTP is widespread evidence of hemorrhage. Petechiae and ecchymoses appear subcutaneously, on mucous membranes of the upper respiratory, gastrointestinal, and genitourinary systems, on serous membranes, and in the endocardium. Intracranial hemorrhage and hematomas are not uncommon, and may result in the more serious neurologic symptoms common to the disease picture.

Incidence

Over three hundred cases of TTP have been reported since 1925 when Moschcowitz first described the syndrome. The sharp increase in reported cases since 1950 is felt to reflect a wider recognition of the disease rather than a true increased incidence. Although no accurate estimates of incidence in the general population are available, the figure per one

hundred autopsies is reported as approximately 0.1 to 0.5 per cent. Three females are afflicted for every two males, and there is no race predilection. Although TTP has been reported in people from less than one to more than seventy years of age, the peak incidence occurs in the third decade. As discussed in the section on etiology, the increasing number of associations of TTP with SLE or polyarteritis nodosa, or both, is noted; equally close attention is paid to the frequent history of previous upper respiratory infections, rheumatic fever, rheumatoid arthritis, allergies, drug sensitivities, and Raynaud's phenomenon or disease.

Symptomatology

Amorosi and Ultmann report "Symptoms and Findings of (approximately 250) Patients with TTP":

	<i>Per Cent</i>	<i>Patients</i>
1. Fever	98	237/243
2. Purpura and/or hemorrhage	96	241/251
3. Pallor and/or anemia	96	246/256
4. Neurological manifestations	92	250/271
5. Proteinuria, hematuria, casts, azotemia	88	191/217
6. Jaundice	42	113/271
7. Weakness, fatigue, malaise	34	92/271
8. Nausea, vomiting	25	69/271
9. Abd. pain	13	36/271
10. Chest and other pain	8	21/271
11. Arthralgia, myalgia	7	18/271

Prodromata most frequently noticed are recent upper respiratory infection, jaundice, weakness, fatigue, malaise, headache, dizziness, nausea and vomiting, and recent immunizations (especially smallpox vaccination or tetanus antiserum). The cause of the fever, the most frequent of the classical pentad of symptoms, is not known. Perhaps it is caused by the generalized primary vascular involvement which also involves the hypothalamic thermoregulatory center. Tissue necrosis, release of products of hemolysis, and release of pyrogenic substances from damaged leukocytes are also possible causes of the fever.

Hemorrhage and purpura are reflected by petechiae and ecchymoses in the skin, mucous membranes of the upper respiratory, gastrointestinal, and genitourinary tracts, and in the retina. Thus result the symptoms and findings of hemoptysis, melena, hematuria, pyuria, proteinuria, casts in the urine, metromenorrhagia, anemia, azotemia, hyperbilirubinemia (indirect, prehepatic jaundice), vascular engorgement, moderate hepatosplenomegaly, and lymphadenopathy.

Actual measurements of circulating platelets may vary during the course of the disease, and the critical level below which hemorrhage is most likely to occur is felt to be approximately 50,000/mm. Anemia is

most often of a normocytic normochromic (hemolytic) type, and spherocytes and nucleated erythrocytes are frequently found. The average reticulocyte count is reported as high as 19 per cent. Although the leukocyte count is not necessarily elevated, moderate to severe leukocytosis is noted especially in the acute phase, sometimes simulating leukemoid reactions and leukemia.

Bone marrow examination may be normal or may show nonspecific changes of compensatory erythroid hyperplasia and a shift to the left of the granulocytic series. There are usually an increased number and size of megakaryocytes, whose nuclei may be immature, single, or nonlobulated. The only specific finding suggestive of TTP is hyalin thrombi.

In evaluating coagulation function tests in cases of TTP, it must be remembered that primarily platelet and vascular factors are abnormal, rather than humeral clotting factors. Consequently, the coagulation time (a measure of overall coagulation, but especially the humoral factors) is most often normal. Bleeding time (function of the platelets and vascular response) is generally prolonged, due to the limited supply of platelets and the pronounced degenerative changes of the vascular endothelium and walls. Likewise, clot retraction is minimal to absent, because the decreased number of platelets will supply insufficient clot retraction factor. The tourniquet test (a function primarily of vascular integrity) is positive.

Several abnormalities in addition to those already mentioned are noted in the serum, but again they are not specific for TTP. Serum proteins are usually normal, with occasionally high globulin fractions. Direct Coombs' tests are negative in over 95 per cent of cases, indicating that there is probably not an antibody present or else it is not well fixed to cells. Leukocyte and platelet sensitivity tests are likewise negative. However, recent and unconfirmed reports indicate shortened erythrocyte and platelet half-lives. This helps to explain the rapid disappearance of erythrocytes and platelets, even in transfused blood, but still does not explain the real cause of the phenomenon. A few falsely positive serologies are found. Bacteriologic studies have been uniformly noncontributory. LE preparations are reported positive in less than ten per cent of reported cases.

Symptoms and findings of renal disease are now recognized as one of the pentad of the TTP syndrome. These findings of hematuria, hemoglobinuria, proteinuria, pyuria, and casts have been thought related to the basic pathogenetic process of hyalin thrombi in the nephrons with associated hemorrhage there, leading in some cases to azotemia.

Neurological manifestations of a transient and bizarre nature are hallmarks of the disease process,

and are caused most probably by the basic process whereby hyalin thrombi cause associated intracranial thromboses and hemorrhage. Symptoms include headache, vertigo, syncope, restlessness, facial nerve weakness, ptosis, confusion, irritability, incoherent episodes followed by lucid intervals, muttering, aphasia, delirium, stupor, convulsions, and coma. The progressive nature of these symptoms may ultimately lead to subarachnoid or intracerebral hemorrhage. However, the cerebrospinal fluid is normal except in occasional instances of hemorrhage directly into the subarachnoid space. EEG examinations vary from normal to indications of diffuse bilateral cortical disorders.

Diagnosis

While the presence in a patient of the classical triad of thrombocytopenic purpura, anemia, and neurological disturbances would unquestionably suggest the diagnosis of TTP (the presence of the pentad, including fever and evidence of renal disease would leave even less doubt), it is nevertheless a fact that in half of the cases one or more of the triad is not found at the outset. Therefore, the positive history, and physical and laboratory examinations cannot be considered diagnostic in themselves; and careful study of the following differential must be made.

1. Thrombotic thrombocytopenic purpura (TTP)
2. Idiopathic thrombocytopenic purpura (ITP)
3. Evans Syndrome (immune hemolytic anemia and thrombocytopenia)
4. Idiopathic autoimmune (acquired) hemolytic anemia (IAIHA)
5. Symptomatic hemolytic anemia (Hodgkin's disease, leukemia, other malignancies)
6. Aplastic anemia
7. Leukemia
8. Hereditary spherocytosis
9. Systemic lupus erythematosus (SLE)
10. Polyarteritis nodosa
11. Eclampsia (no widespread capillary lesions of TTP, but possible presence of anemia and thrombocytopenia)
12. Drug or toxin reaction
13. Sepsis
14. Paroxysmal nocturnal hemoglobinuria

As a further aid in differential diagnosis, the reader is referred to Singer's "Aid to Differential Diagnosis of Diseases with Simultaneous Manifestations of Thrombocytopenia and Hemolytic Anemia."*

In the end, the definitive diagnostic finding must

* Singer, Karl. Thrombotic thrombocytopenic purpura. *Advances in Internal Medicine* VI:219, 1954.

be histopathological examination of tissue, with the finding of widespread complete or incomplete occlusions of small arteries, arterioles, especially the arteriole-capillary junctions, and capillaries by an intraluminal and intramural acellular amorphous or granular eosinophilic material, called hyalin thrombi. Lymph node biopsy has proved to be the most helpful biopsy technique for histologic diagnosis.

Treatment

Treatment of TTP has been persistently discouraging, but has proceeded along the following lines of thinking.

Since problems of anemia and thrombocytopenia were most striking (and readily assessed by quantitative means), blood and platelet transfusions were suggested and attempted. As mentioned earlier, it is now being shown that erythrocyte and platelet half-lives are shortened in TTP, and this same phenomenon is found in the transfused cells, for unknown reasons. In addition, the normal platelet half-life is eight to ten days, and unless fresh blood were used instead of the customary bank blood, the transfusion would contain very few platelets anyway.

TTP is characteristically a febrile illness, and (although backed by no significant bacteriologic findings) sulfonamide and other antibiotic therapy has been tried, to no avail.

Early heparinization to counter the thrombotic vascular occlusions has been used recently, with some limited success. The use of fibrinolytic agents to halt and reverse the intravascular clotting has been suggested but not yet reported.

Splenectomy, as an empirical procedure and because it has been of value in ITP, has proved of value, giving a 20 per cent chance for remission in cases of acute TTP—but not ultimate cure. According to this theory, the spleen may be the site of synthesizing an antiplatelet antierythrocytic factor (as in ITP); but the spleen is most probably not the only site of its synthesis (as is also the case in ITP). The largest problem with this form of treatment, as with all other forms of treatment in TTP, is the severity and acuity of the attacks which are frequently diagnosed too late for any therapy to be of use.

High doses of cortisone (either directly or through ACTH) have been responsible for some remissions of TTP. In ITP, it is felt that cortisone reduces capillary permeability and reduces the effect of the circulating antiplatelet factor. Cortisone's mechanism of action in TTP is unknown, but the current treatment of choice for acute TTP is massive doses of cortisone, plus splenectomy if the patient's condition permits.

Prognosis

Acute TTP almost uniformly runs a rapidly progressive and fatal course despite attempted treatment, and other 70 per cent die within thirteen weeks of onset. It is, however, not possible to predict with certainty the outcome or duration of illness in any particular case due to the occasional more chronic form of the disease, where its course of intermittent exacerbations and remissions may last from months to years with death occurring finally during an acute exacerbation.

Summary

Thrombotic Thrombocytopenic Purpura (TTP, Moschcowitz's Disease) is an acute or chronic illness which classically presents a clinical pentad of symptoms and signs including thrombocytopenia, anemia, neurologic manifestations, fever, and abnormal renal studies. Its etiology and treatment of choice are currently subject to much discussion and research, and the prognosis is extremely poor.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.

Permanent Transvenous Pacing

(Continued from page 240)

pacing of the heart. The frequent ventricular premature beats observed in this patient usually arose on the downstroke of the preceding T wave, during the vulnerable period of ventricular repolarization. The suppression of the repetitive ventricular arrhythmias by electrical pacing afforded a solution to a most difficult problem. There has been no recurrence since the patient left the hospital on July 13, 1968.

I wish to thank Dr. Hubert Parker for allowing me to see this patient.

References

1. Sowton, E.; Leatham, A. and Carson, P.: The suppression of arrhythmias by artificial pacemaking. *Lancet* 2:1098-1100, 1964.
2. Kastor, J. A., et al.: Transvenous arterial pacing in the treatment of refractory ventricular irritability. *Ann. Intern. Med.* 66:939-945, 1967.
3. Cohen, L. S., et al.: Recurrent ventricular tachycardia and fibrillation treated with a combination of beta-adrenergic blockage and electrical pacing. *Ann. Intern. Med.* 66:945-949, 1967.

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Spontaneous Thrombophlebitis and a Hepatic Mass

THE PATIENT, A 67-YEAR-OLD WOMAN, was admitted to the hospital with pain and swelling of both lower extremities of about three months duration. On several occasions, she had noticed "red streaks" on her legs. These were tender, and were relieved by hot Epsom salts soaks and the use of a heating pad as advised by her physician. Several weeks before admission she had an episode of chest pain and a nonproductive cough. She gave no history of dyspnea or hemoptysis. She also had intermittent right lower quadrant abdominal pain for two months that was relieved by Anacin. The pain was unaccompanied by other abdominal symptoms. The patient had no allergies. She had angina pectoris for the past ten years, and arthritis since 1944.

One brother had had cancer, and both parents had had arteriosclerotic heart disease.

The patient gave a history of urinary incontinence, right upper quadrant pain with deep inspiration and with coughing. This was attributed to cholelithiasis which had been diagnosed by x-ray several months earlier.

The patient's blood pressure was 120/80, and her pulse rate was 80 and regular. Examination of the head, eyes, ears, nose and throat revealed some arteriolar narrowing of the optic fundi. The neck was negative; the breasts were negative; the lungs were clear. There was a grade II/VI systolic murmur, and the second aortic sound was greater than the second

pulmonic sound. The point of maximum cardiac impulse was located in the fifth intercostal space in the midclavicular line.

There was abdominal tenderness in both the right upper and right lower quadrant, and a palpable mass that was thought to be the gallbladder in the right upper quadrant. There was a small cystocele. The extremities had pitting edema, and were warm and tender. The neurological examination was normal. The patient was treated with heparin and warfarin, and she improved.

The following laboratory results were normal: complete blood count, urinalysis, serology, BUN, creatinine, CO_2 , electrolytes, calcium, phosphorous, blood glucose, PBI, T_4 by column, bilirubin, alkaline phosphatase, LE preparation, uric acid, rheumatoid factor, and protein electrophoresis. The cholesterol was 322 mg per cent with total lipids of 743 mg per cent. The SGOT and LDH were elevated. LDH isoenzymes revealed elevation of LDH-5. Sigmoidoscopy was unremarkable. An exploratory laparotomy was done. Postoperatively, the patient developed chest pain with hypotension, hemoptysis and dyspnea. The hemoglobin was 8.8, and the hematocrit was 28 after surgery. Several chest x-rays, electrocardiograms, and a lung scan were done. There was a rise in the LDH with normal isoenzymes while the SGOT was normal.

After approximately two weeks of repeated episodes of chest pain, the patient was again taken to surgery. Four days later she developed severe chest pain, again with hypotension. The SGOT was 155 and the LDH was 3,384 with a rise again in LDH-5. She was treated with anticoagulants, digitalis, morphine, antibiotics for pneumonia, and general sup-

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portive care, but she eventually died in pulmonary edema.

Robert T. Manning, M.D. (moderator): First, an addition to the past history of this patient. She had experienced chest pain in 1957, saw her physician and received nitroglycerin. Are there any questions?

Arthur Allen* (student): Was there any evidence of a bleeding tendency such as epistaxis, purpura, or hematuria?

Dr. Manning: No.

Richard Roark (student): Was there a history of weight loss?

Dr. Manning: She had lost ten pounds, but she said this was because she had been dieting.

Robert Stephenson (student): May we have a better description of the right lower quadrant pain?

Dr. Manning: It was described on two occasions as a cramping sensation in the right lower quadrant.

John Kearns (student): Could you describe the status of the patient's health before the onset of her illness?

Dr. Manning: I believe she felt that she was in her usual normal state of health.

Mr. Allen: Were there any changes in bowel habits, or gastrointestinal bleeding?

Dr. Manning: None.

Mr. Roark: May we have a better description of the right upper quadrant pain?

Dr. Manning: It was poorly described, other than she complained of right upper quadrant distress. She did say that she had this at times when she ate onions, lettuce and cabbage.

Mr. Stephenson: Was there any back pain?

Dr. Manning: No.

Mr. Kearns: Was there any history of previous operations?

Dr. Manning: None.

Mr. Allen: Was there any history of fever, chills, or night sweats?

Dr. Manning: Not before her admission.

Mr. Roark: Could you describe the right upper quadrant mass?

Dr. Manning: It was described as a 2 cm mass to the right of the rectus abdominus. It was slightly tender.

Mr. Roark: Was this one mass or two?

Dr. Manning: I interpreted it as one.

Mr. Stephenson: Was there a mass palpable in the right lower quadrant?

Dr. Manning: No.

Mr. Kearns: Was a platelet count done, or is there a description of the platelets on the peripheral smear?

Dr. Manning: Platelet count was about 300,000, and there were five or six of them described as adequate.

Mr. Allen: Was an amylase or lipase done, and may we have the SGOT on admission?

Dr. Manning: Amylase and lipase were not done on admission. On admission the SGOT was 14. It subsequently rose a little.

Mr. Roark: Were the stools tested for occult blood?

Dr. Manning: No.

Mr. Stephenson: Were the prothrombin time or coagulation time done on admission?

Dr. Manning: Yes. The coagulation time was nine minutes, and the prothrombin time was 15 seconds.

Mr. Kearns: Were sputum cultures done?

Dr. Manning: Yes. No significant flora was reported.

Mr. Allen: What were the admission electrolytes and were there any abnormalities occurring in the electrolytes during the hospital course?

Dr. Manning: Sodium was 141; potassium, 4.5; chloride, 103; CO₂, 28; and they remained at that level until about a month after admission when her sodium was 119; potassium, 4.5; chloride, 86; and CO₂, 23.

Mr. Roark: Was there a rise in the BUN following the second operation?

Dr. Manning: It was recorded: 11, 10, 12, and it was 34 two days before death.

Mr. Stephenson: What was the urine output on the last ten days?

Dr. Manning: It was consistently below 1,000 and usually below 700 ml per day, ranging down to 120.

Mr. Kearns: What was the temperature course in this patient?

Dr. Manning: At the time of admission she had a slight temperature elevation. Following the first operation it was normal for a while, but then increased intermittently and remained at an intermittent elevation.

Mr. Allen: Were there any changes in the cardiac auscultatory findings?

Dr. Manning: She had a friction rub over the precordium about two days before her death.

Mr. Roark: Can we have a better description of the auscultatory findings of the chest during the hospital course?

Dr. Manning: There were five or six notations, surrounding two acute episodes in the hospital, where it was stated that she had rales on both sides. On one occasion the medical student recorded that she had rales on the left side, but decreased breath sounds on the right side without rales.

* Although a student at the time of the conference in March, 1968, he, like the others referred to as students, received the M.D. degree in June, 1968.

Mr. Stephenson: Was osmotic diuresis attempted during the last week?

Dr. Manning: No.

Mr. Kearns: Was there any difficulty obtaining therapeutic coagulation time with initial heparization?

Dr. Manning: No, I do not think so.

Mr. Allen: Were there any blood transfusions during or after the second operation?

Dr. Manning: She had one blood transfusion after the second procedure.

Question from the audience: Did she have a glucose tolerance test?

Dr. Manning: No.

Electrocardiograms

Mr. Roark: There are four electrocardiograms in today's series. The one taken on admission shows a regular sinus rhythm with a rate of about 90 per minute. The P-R interval is approximately 0.12 seconds. The QRS complex is approximately 0.7, or 0.6 seconds. The mean QRS axis is about zero degrees. With a good progression of the R waves across the precordial leads we classify this as a normal electrocardiogram.

In the second electrocardiogram taken nearly a month later, we again see a regular sinus rhythm with a rate of about 96 per minute. The striking changes that we notice here are T wave inversion in nearly all leads. This is consistent with a possibility of a pericarditis. We note a most striking change in the third electrocardiogram taken on November 2 (*Figure 1*). There is a depression in amplitude in all the leads, less severe, however, on the anterior precordial leads. This is consistent with a pleural ef-

fusion or possibly a pericardial effusion. In addition, we see a widening of the QRS complex. It is difficult to measure these, but I believe these can be measured to about 0.1 per second. We see R waves in the right precordial leads. There are bipolar biphasic QRS complexes in the left precordial leads. This is compatible with a partial right bundle branch block and possible right ventricular strain. We also notice another change in this electrocardiogram from the previous ones, and that is the development of Q waves in V₄, V₅, and V₆, and leads II and III. This is consistent with an inferior, lateral, apical, myocardial infarction.

The fourth electrocardiogram (*Figure 2*) taken the next day shows changes similar to the previous electrocardiogram, but with further depression of the

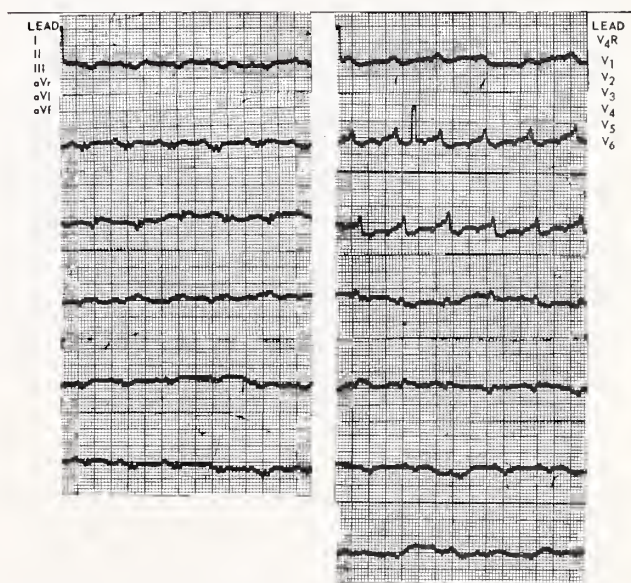


Figure 2. Electrocardiogram taken November 3, 1967

QRS complexes and all the voltages in general. In addition, we see progression of the Q waves which have developed now in II, III, AVL, AVF, and V₃, V₄, V₅, and V₆. This is consistent with increasing anterior, inferior, lateral, myocardial infarction.

Dr. Manning: Dr. Dunn, do you have any comments?

Dr. Marvin Dunn (cardiologist): I think these show a posterior, inferior, lateral infarct. The differential diagnosis would be whether or not this represents right ventricular hypertrophy as well. There really does not appear to be any change which would indicate right ventricular overload. I would suspect this is probably all due to infarction.

X-Rays

Mr. Stephenson: There are eight x-rays for presentation. The first x-ray was taken on September 28,

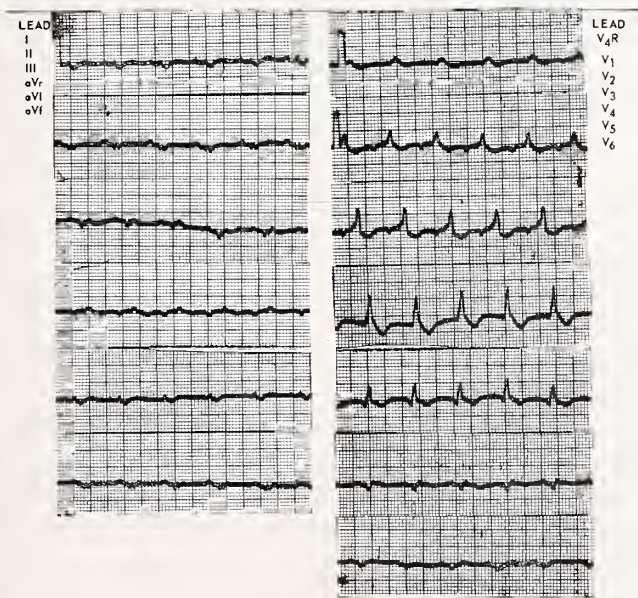


Figure 1. Electrocardiogram taken November 2, 1967

1967, and is a lateral abdominal film. In the bony structure there are some degenerative changes in the lumbar and lower thoracic spine. There is also decreased bone density in the lumbar spine. One can also see some increased calcification consistent with calcified abdominal aorta and iliac vessels. We interpret this film as showing osteoarthritis, osteoporosis, and arteriosclerosis with involvement of the abdominal aorta and iliac vessels.

In a liver scan done on the same day (*Figure 3*), there is a large area of decreased uptake in the right lobe of the liver which measures out to be about 4 cm in diameter. There is a mottled appearance in

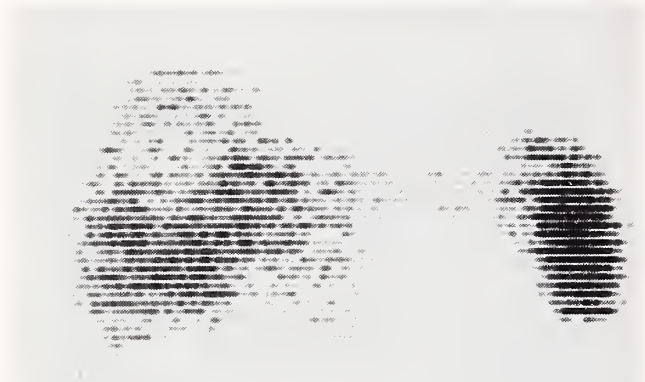


Figure 3. Liver scan taken September 28, 1967

the left lobe of the liver. Again, this is not particularly circumscribed, but we feel that there is a decreased uptake in this area. Since this liver scan was done with technitium 99 we feel that the spleen had a normal uptake; however, we cannot preclude the fact that this may be increased and show signs of portal hypertension.

An intravenous pyelogram taken on October 2 shows scoliosis of the lumbar spine and osteoporotic changes. This is a ten minute film and there is good filling of both calyces with normal structure and smooth contour. The bladder is well visualized and not eroded. The calcification in the abdominal aorta can again be seen.

In an upper gastrointestinal film following a barium meal, there is some irregularity in the fundus of the stomach. We believe that this is probably more consistent with increased secretion than neoplastic change. The remainder of the stomach appears to be normal, as does the small bowel pattern.

A gallbladder visualization done at the same time shows two large radioluscent stones, central calcification, but the gallbladder appears to be functioning

well. It appears to have a smooth contour of the mucosa. We interpret this film as showing cholelithiasis with a functioning gallbladder and a possible change in the fundus of the stomach.

The first of a series of chest examinations is a posteroanterior (PA) view taken on October 16, which shows no bony abnormalities. There is elevation of the right hemidiaphragm, and there is an infiltrative process in the right lower lobe. The costo-vertebral angle is clear. This film is compatible with either infiltration, inflammation, or infarct in that region.

In a lung scan done on October 23 (*Figure 4*), there is an area of decreased uptake in the left middle lobe and a questionable area in the right lower lobe. This lung scan is consistent with pulmonary infarction or inflammation.

In an anteroposterior (AP) film of the chest taken on October 27, it is impossible to compare the heart silhouette with the other chest film, but we see again a diffuse haziness over the entire right lung field. The infiltrative process is again present. There is some blunting of the right costophrenic angle, but



Figure 4. Lung scan taken October 23, 1967

the left costophrenic angle is clear. This film is consistent with either inflammation, infiltration, or infarct in the right lower lobe. There is also right pleural effusion.

In another AP of the chest taken on November 2, it is difficult to even compare the heart size with the previous AP film. There are changes in the right lower lobe, but we see changes of infiltration or pulmonary infarction in the left middle lobe. There are increased vascular markings to the periphery and we feel this film is consistent with pulmonary edema and pulmonary infarction or infiltration.

Discussion

Mr. Kearns: We are presented today with a 67-year-old woman who developed thrombophlebitis three months before her hospitalization. She subsequently developed chest pain, hemoptysis, friction rub. She also had changes in the electrocardiogram, chest x-ray, and lung scan that are consistent with pulmonary embolism and pulmonary infarction.

Thrombophlebitis is commonly a complication of congestive heart failure, chronic debilitation, and any other disorder requiring prolonged bed rest such as the postpartum and postoperative states. Yet the history and findings of these conditions were conspicuously absent when this patient was admitted to the hospital. Other diseases may be associated with thrombophlebitis: ulcerative colitis, bacteriodes infections, psitticosis, pyogenic infections, and amphotericin therapy. There was, however, no evidence of these diseases in this case. Because of the spontaneous onset of thrombophlebitis, which did not respond to anticoagulant therapy, in a patient with a hepatic space-occupying mass, we choose to relate this process to internal malignancy.

Trousseau¹ first reported the association between cancer and vascular thrombosis in 1865. In 1964, Carter¹ reported 1,000 cases of thrombophlebitis, 18 of which were found to have visceral cancer. Other studies report an incidence of 2 to 3 per cent. Thrombotic tendencies have been reported in all types of cancer, particularly those originating from the lung, pancreas, gastrointestinal tract, liver, and ovary. Carcinoma of the pancreas is classically associated with migratory thrombophlebitis. The most common presenting complaint of this disease is pain, consistent in nature, that varies with the position of the tumor within the gland. The lack of this symptom and the lack of x-ray findings lead us to other possible diagnoses.

Cancer of the ampulla of vater and bile ducts can be excluded because our patient lacked evidence of biliary obstruction.

Cancer of the small intestine accounts for only 3 per cent of all tumors of the gastrointestinal tract. Presented with a normal visualization of the small bowel by x-ray, we find this diagnosis extremely unlikely.

Renal cell carcinoma could explain our patient's right lower quadrant abdominal pain and hepatic lesion. Since venous extension is common with this disease, leg edema and thrombophlebitis may be associated. We believe, however, that this diagnosis is unlikely without a history of hematuria in the presence of a normal intravenous pyelogram.

Carcinoma of the lung occurs eight times more frequently than average in males over 40 years of

age who smoke. The major presenting symptoms are cough, weight loss, chest pain, and dyspnea. A seven-month duration of symptoms before diagnosis is common. The patient under discussion initially presented with an infiltrative process in the right basilar lung field on x-ray. The possibility of a pneumonitis secondary to bronchial obstruction by tumor was entertained. The lack of fever and purulent sputum and the transient and distant history of cough and chest pain in a nonsmoker with thrombophlebitis of the lower extremities leads us to a more plausible explanation for this infiltration.

Carcinoma of the stomach is a common cancer of the digestive tract occurring predominately in males over 40 years of age. The lack of early symptoms makes diagnosis difficult. Complaints of vague fullness, nausea, sensations of pressure, belching, and heartburn after meals are common. The patient's complaint of epigastric distress, fullness, and flatulence are suggestive of carcinoma of the stomach. With a questionably negative upper gastrointestinal x-ray, this diagnosis cannot be ruled out, but we feel we have a more likely diagnosis.

Ovarian carcinoma is the third most common malignancy of the female genital tract. The age distribution is 20 to 85 years with a peak incidence in their mid-fifties. Some studies show a significant predilection for the nulliparous married woman, but this is controversial.

Lower abdominal pain and abdominal swelling are the most common presisting symptoms of this disease and are seen in about 50 per cent of the cases. Urinary symptoms, weight loss, and gastrointestinal complaints occur in 25 per cent of patients. The clinical findings are those of adenexal mass, anemia, ascites, abdominal distension, and pleural effusion. The findings of a palpable mass varies from 10 to 75 per cent in reported cases, and may be related to the diagnostic acumen of the individual physician or the frequency with which routine pelvic examinations are done. Progression of this tumor is frequently rapid with widespread and local metastases. Five-year survival rates range from 20 to 50 per cent, and suggest the ominous nature of this tumor.

This disease, anatomically, presents an attractive diagnosis, but the absence of a palpable mass or abdominal distention suggest an alternative diagnosis.

Carcinoma of the gallbladder, the commonest neoplasm of the biliary system, ranks fifth in frequency among gastrointestinal malignancies, and occurs three times more frequently in women than men. Its peak incidence is in the sixth and seventh decades of life. The association of carcinoma with gallstones (up to 90 per cent) suggests that associated infection and chronic irritation by the stones may be an important factor in the etiology.

The clinical course of these carcinomas is extremely insidious, and frequently asymptomatic over long periods of time. Symptoms, when they present, take the form of anorexia, nausea and vomiting, intolerance to fatty foods, and belching—all suggesting some form of gallbladder involvement, usually inflammatory in nature. Jaundice does not occur until the tumor has obstructed the extra-/intra-hepatic bile ducts. A palpable mass is present in about one half of these cases, and right upper quadrant pain or colic shows a similar percentage of involvement. Associated peripheral thrombophlebitis, though infrequent, has been reported with carcinoma of the gallbladder. In this case, the history of epigastric distress and right upper quadrant pain combined with a palpable right upper quadrant mass are consistent with carcinoma of the gallbladder, but in the presence of a normally functioning, smoothly contoured gallbladder containing two large stones we choose to attribute the patient's findings to benign disease of the gallbladder.

Carcinoma of the right colon has its highest incidence in patients over 60 years of age. Some series report a slightly higher incidence among women. In Tamoney's review¹ of 211 cases, abdominal discomfort was the most common presenting complaint. Pain was poorly localized initially, but gradually centered in the right lower quadrant of the abdomen. Pain was generally mild, and intermittent cramps were common. Pain that mimics acute appendicitis can occur. In approximately half of the cases, a palpable mass may be felt. In Tamoney's study, the diagnosis was delayed by an average of six months after onset of symptoms largely because of the patients' disregard for their relatively mild symptoms.

Failure to diagnose cecal lesions by barium enema occurs in 25 per cent of cases because of technical difficulties. Tumors of the right colon are generally polypoid with a tendency to become friable and necrotic, accounting for the common findings of anemia. Metastasis may occur by direct extension, by lymphatic and hematogenous spread, and by implantation. Regional nodes and the liver are common sites of involvement, but metastasis to lungs, kidneys, bone, and adrenals also occurs. The association of carcinoma of the colon with coagulation disorders is well established, and was one of the most common lesions in Miller's recent review.²

In conclusion, we attribute this patient's tendency toward intravascular thrombosis to an associated adenocarcinoma of the cecum with metastasis to the liver. Despite the absence of anemia and a palpable mass on admission we believe that this diagnosis best explains this patient's course.

Dr. Manning: Do you have a second diagnosis?

Mr. Roark: I think a second diagnosis would probably be a carcinoma of the stomach.

Mr. Stephenson: My second diagnosis is carcinoma of the gallbladder.

Dr. Manning: Would you comment about the pathophysiology of this clotting defect with abdominal malignancies?

Mr. Allen: One of the most recent articles that I have read on this was by Miller.² They studied 50 patients with various malignancies and found that almost all of these patients had an increase in the clotting factors, most commonly Factor I, Factor V, and Factor VIII. They postulated that one of the reasons why this hypercoagulable state might exist would be that subclinical thrombosis was forming, which would have a tendency to use up the clotting factors, therefore, causing an accelerated production of the clotting factors.

Dr. Manning: Mr. Roark, do you have any other comments?

Mr. Roark: Only to add that you can have elevation of both the clotting factors and the lysing factors, the fibrinolysin elements, so that you can have both hypercoagulability and hemorrhagic tendencies.

Dr. Manning: Mr. Stephenson and Mr. Kearnes carefully avoided speculating about what surgery was done.

Mr. Stephenson: Whatever they did required about five grams of hemoglobin. I think it was probably an attempted right colon resection.

Dr. Manning: And the second procedure?

Mr. Stephenson: Vena cava ligation.

Dr. Manning: Mr. Allen, three days after the first operation this patient was described by the medical student as having crushing chest pains late at night. Seven days later she was described by a nurse, again late at night, as being extremely apprehensive, sweating, and complaining of epigastric pain. About this time she began to ask for her nitroglycerin, which she had not used previously. She subsequently took one to six tablets a day. Would you comment on what you think was going on during this time?

Mr. Allen: I think there is a possibility that she had myocardial infarctions at this time. She could have had pulmonary embolus with a pulmonary infarction. The differential diagnosis between a pulmonary embolus and a myocardial infarction is quite difficult at times. There is a possibility that with a pulmonary embolus there may be vasospasm of the pulmonary vasculature causing an increased right ventricular strain, decreased filling, and anginal pain.

Dr. Manning: Mr. Roark also said that at times she felt "like her heart was going to jump out of her chest."

Mr. Roark: She could have been having some arrhythmias at that time. We do not have any information to support that. I agree that this was prob-

ably a pulmonary infarction or embolism which put an extra load on the right heart, requiring more work of that section of the heart, and therefore, strain to the coronary arteries, causing angina.

Dr. Manning: Mr. Stephenson, four days after the first operation a positive urine culture with *Proteus mirabilis* was reported, and she received sulfisoxazole. Any comment?

Mr. Stephenson: I think the proteus was a secondary contamination to catheterization, but with a history of incontinence she could have had this before her surgery.

Mr. Roark: I would not think that sulfisoxazole would be very effective in treating proteus.

Dr. Manning: Mr. Kearns, you did not comment specifically about the cause of death. How do you think she died?

Mr. Kearns: Myocardial infarction.

Mr. Stephenson: With the urine output dropping at the last, I think she had an acute tubular necrosis (with water intoxication, hyponatremia, and hyperkalemia), digitalis intoxication, and myocardial infarction. A combination of all three.

Dr. Manning: All right. One final question. On the initial urinalysis and subsequently, it was reported that this patient had a trace of hemoglobin in her urine. On later occasions she had two to four red cells per high power field.

Mr. Allen: Concerning the hemoglobin, there is a possibility that since she did have a hypercoagulable state, she could have had some infarctions or venous thrombi in the kidney. Concerning the red blood cells, if they were later on in the course this could be due to acute renal failure.

Dr. Maxwell G. Berry (internist): I have three very short things that I can say, and how much they will contribute I do not know.

The first is that there is a definite association between pulmonary embolization and myocardial infarction, and I think that myocardial infarction follows pulmonary embolization, at least occasionally. Second, and I hate to mention this in the presence of Dr. Bolinger, but no one said anything about the possibility of this thrombophlebitis having been initiated by taking estrogen and progesterone. In my sphere of medical practice anyone that has a blood clot any more is probably on "The Pill." Third, this is an ideal problem for the surgeon, because you can go in and do an exploratory laparotomy—you always have the "ace in the hole" when you know that the patient had gallstones.

Dr. Robert E. Bolinger (internist): Just to comment about the latter phase of this patient's illness. We were faced with the differential diagnosis between myocardial infarction and simply a recurrent pulmonary emboli. The only thing that really points

to the myocardial infarction is the electrocardiogram. We chose to consider that this patient had a myocardial infarction and treated her as such. As far as "The Pill" is concerned, this patient was 67 years old and I doubt that she had been taking them. Incidentally, in that same room we had almost an epidemic of thrombophlebitis in women of all ages, and we were impressed by the fact that none of them were taking "The Pill." That was an uncontrolled series, of course.

Dr. Marvin Dunn (cardiologist): I think this is a rather difficult differential to make. It is always important to consider the possibility that this patient had tumor emboli or tumor implants on the pericardium, causing constrictive pericarditis that produced the chronic right heart failure into which she apparently lapsed. The diagnosis of pulmonary emboli is an extremely difficult one to make, and it is the diagnosis that I miss most often. We suspect it when a patient is in heart failure and is not responding to usual methods of management if, with anticoagulation, they start getting well. We see it in the hospital as a terminal syndrome in which the nurses' notes say that the patient was a little bit apprehensive, and then about four hours later the patient has had a cardiac arrest. Almost invariably, at autopsy, the patients have pulmonary emboli.

Dr. Frederick Holmes (internist): I think the possibility that a hypercoagulable state may have been operative is very intriguing. The hypercoagulable state associated with neoplasm is interesting, and it is rather like original sin. Some people believe it does not exist, and those who believe it does exist are not quite sure what it is nor how to measure it. Miller's article that was cited was a good study, but it was a little bit vague. The idea was to examine all the possible clotting abnormalities that one might find in cancer, and to pick out which ones exceeded, or were less than a statistical incidence of 0.05. As I recall, there were two where p was less than 0.05, and Dr. Miller decided they must be significant. You can comb all the literature and find adequate articles to support any position you wish to make. We do know that there often is an increase in platelets in neoplasia. Any time you see a platelet count exceeding 400,000 think of an occult carcinoma. We also know that the sedimentation rate is fast, and this has something to do with fibrinogen. A recent article says that any time the sedimentation rate is extremely fast the chance that the patient has a carcinoma are greater than 50 per cent. I believe the patient probably had pulmonary emboli and a myocardial infarction. Finally, I would like to envoke an aphorism. "There is no reason why a patient with a wooden leg cannot also have a glass eye."

Report of the Pathologist

Dr. William S. Tihen (pathologist): Tissues removed at the first operation included the gallbladder and the appendix. The gallbladder showed slight chronic cholecystitis and cholecystolithiasis. The tip of the appendix was swollen by a moderately differentiated adenocarcinoma which originated in the mucosa (*Figure 5*), and infiltrated through the wall into the periappendiceal fatty tissues. Widespread intra-abdominal metastases were present at the time of surgery, and were confirmed at autopsy one month later in the liver, portahepatic lymph nodes, gastrohepatic ligament, parietal peritoneum, right ovary, and left oviduct and mesosalpinx.



Figure 5. Moderately differentiated adenocarcinoma of the appendix.

In keeping with the history of migratory thrombophlebitis, a thrombus was present in the right iliac vein. Emboli of varying ages were present in the pulmonary arteries (*Figure 6*), and multiple pulmonary infarcts of varying ages were present. The inferior vena cava was surgically occluded.

All the coronary arteries showed atherosclerosis with severe focal luminal narrowing. The left ventricular wall and the interventricular septum showed massive healing and recent myocardial infarcts (*Figure 7*), and small pieces of mural thrombus were present in the left ventricular chamber. Organizing thromboemboli, all of approximately the same age, were present in the left anterior descending coronary artery, in the left circumflex coronary artery, in a renal arcuate artery, and in a splenic artery; and infarcts of approximately the same age were present in the kidneys and in the spleen (estimated age: 2-3 weeks). Since the thrombi in the coronary arteries were not attached to the intima but showed peripheral organization, they were probably emboli from the left ventricle. The renal infarcts undoubtedly caused the hematuria, and the splenic infarct may

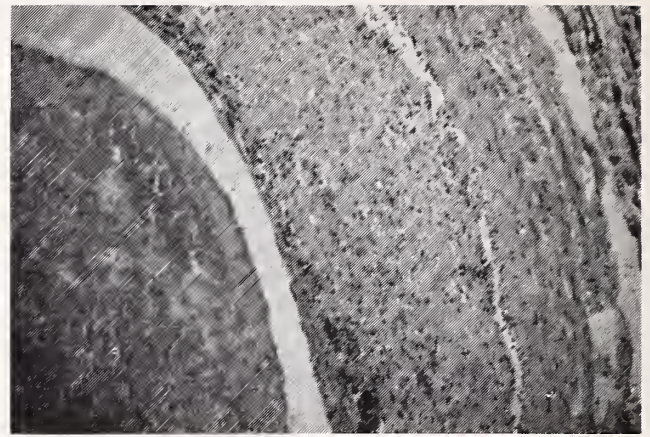


Figure 6. A pulmonary artery with recent unattached (left) and organized (middle) thromboemboli. The arterial wall is to the right.

have contributed to the episodes of pain. Severe acute passive congestion, most marked in the lungs and in the liver, and with central-lobular hepatocellular necrosis, was due to congestive heart failure caused by the myocardial infarcts.

A follicular adenocarcinoma of the thyroid isthmus was an interesting incidental finding. Though this tumor invaded adjacent thyroid tissue, no extraglandular extension or metastases were found. Interestingly, even though no vascular invasion was seen, vascular thrombi were present at the edge of this tumor.

Adenocarcinoma of the appendix is a rare neoplasm, being encountered once in approximately 2,000 autopsies; or comprising less than 1 per cent of colonic carcinomas. The majority of appendiceal neoplasms are carcinoids (estimate: 90 per cent). Adenocarcinomas may cause appendicitis by luminal obstruction early. Generally, however, they remain asymptomatic until they have spread beyond resectability and hope for cure. Adenocarcinoma-in-situ is



Figure 7. Cut surface of the left ventricular wall showing extensive mottling of necrosis.

limited to the mucosa and, if completely removed, is cured by simple appendectomy. Cure rates are much lower for adenocarcinomas with any degree of invasion, however, and most fit into this category.

The Tumor Registry at KUMC has four cases of adenocarcinoma of the appendix on file. One was a stage I lesion, and that patient is living and apparently free from disease almost fourteen years later. One was a stage III lesion, and the patient died four and a half years after operation (no autopsy). The other two patients had stage IV lesions, and both are dead. One died a little over a year after surgery (no autopsy), and the other is the patient under discussion.

Dr. Manning: Are there any questions?

Dr. Thomas J. Rankin (internist): Did the patient have unreasonable sweating during her clinical course in the hospital?

Dr. Manning: On one occasion, during the night, she had profuse, drenching, sweats and became very apprehensive.

Dr. John Kepes (pathologist): In addition to the debate of statistics of hypercoagulability there is also present in the literature a debate about the advisability of early removal of the appendix because, allegedly, appendices are going to protect us against cancer. I am not in a position to take issue with the statistics of the matter, but it might be a good idea to remember this one type of cancer against which the preservation of the appendix will *not* protect us.

Primary Diagnoses

Adenocarcinoma of the appendix with metastases to: liver, portahepatic lymph nodes, gastrohepatic

ligament, parietal peritoneum, right ovary, and left oviduct and mesosalpinx.

Thrombus of the right iliac vein with multiple pulmonary thromboemboli and pulmonary infarcts.

Atherosclerosis, marked, of aorta and coronary arteries with myocardial infarcts, massive and recent and healing, of the left ventricular wall and of the interventricular septum.

Mural thrombi of the left ventricle with thromboemboli in the left anterior descending and left circumflex coronary arteries, and renal and splenic arteries, and infarcts of kidneys and spleen.

Acute passive congestion, marked; most severe in the lungs and liver with central-lobular hepatocellular necrosis.

Accessory

Follicular adenocarcinoma of the thyroid (no extraglandular extension or metastases).

References

1. Carter, J. P.: Thrombophlebitis as an Early Sign of Visceral Cancer. *Angiology* 15:236, 1964.
2. Miller, S. P., *et al.*: Coagulation Disorders in Cancer. I. Clinical and Laboratory Studies. *Cancer* 20:1452, 1967.
3. Sieracki, J. C. and Tesluk, H.: Primary Adenocarcinoma of the Vermiform Appendix. *Cancer* 9:997-1011, 1956.
4. Tamoney, H. J., Jr. and Calderelli, R. A.: Cancer of the Right Colon: An Analysis of 211 Patients. *Disorders Colon and Rectum* 9:13-9, 1966.
5. Wood, David A.: *Atlas of Tumor Pathology*, Sec. VI—Fascicle 22; Tumors of the Intestines. Armed Forces Institute of Pathology, Washington, D. C. 20305, 1967.

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The doctors of the U.S.A. are being asked to send their medical journals—after they have read them—to colleagues overseas (Asia, Latin America, and Africa) who wish to have access to current medical literature but, either because of currency regulations or actual cost involved, cannot themselves subscribe to medical periodicals. We can supply you with the name, address, and medical specialty of doctors in these areas who would be happy to receive these much wanted journals (*particularly specialty journals*), which you will mail direct to your overseas colleague.

This is a direct "Doctor-to-Doctor" program which is being sponsored by the American Medical Association with the collaboration of The World Medical Association to help alleviate the lack of current medical publications and to further international good will. Your cooperation in this program will be greatly appreciated and your contact with these colleagues in other countries, we can assure you, will prove very gratifying. If you wish to participate in this program, send your name, address, and titles of journals you will contribute to DOCTOR-TO-DOCTOR PROGRAM, c/o The World Medical Association, Inc., 10 Columbus Circle, New York, New York 10019.



CP + T

Newsletter

Cathartics

IN NORMAL INDIVIDUALS there is seldom any need to use cathartic medications. The stimulus to defecate is brought about when a sufficiently large bolus of stool reaches the rectum. Obviously, under certain circumstances, the normal mechanisms may not be sufficient. For example, in bedfast patients for whom straining at stool may be undesirable or in patients about to undergo diagnostic radiography of the colon the use of cathartics may be indicated. Nevertheless, the use of cathartics far exceeds the medical indications. Many of these drugs are sold over the counter without a prescription and many of the ethical drug companies readily cater to the demand for cathartic drugs. In most patients who are chronic cathartic users, proper and prompt attention to bowel urge will remove the need for catharsis. Furthermore, a mild and small (240 ml) tap water enema will often suffice and be much more gentle than the more drastic purgatives which the patient often takes.

Cathartics can be broadly divided into two large groups, those which act by providing bulk and thereby increase rectal stimulation, or those which act primarily by irritation of the bowel.

Lubricants and Softeners

1. *Mineral Oil*—this agent is generally not absorbed and mixes with the bowel contents, thereby providing both bulk and lubrication. However, with chronic use, enough of the mineral oil is absorbed to cause granulomas. When this drug is aspirated, as sometimes occurs in chronically debilitated patients and chronic users, lipoid pneumonia may result. An unpleasant effect of mineral oil is often a leakage of the oil around the anus. Certain studies have shown that among patients who have developed

gastric carcinoma there is a disproportionately large number of chronic mineral oil users. It has been postulated that this may be due to minute amounts of petroleum carcinogens remaining in the mineral oil.

2. *Diocil Sodium Sulfosuccinate (Colace)*—this is another agent which mixes with the stools to cause increased water retention and greater bulk.

The lubricants and softeners should be used in patients who have anal fissures or who should not strain during defecation, for example, in postoperative patients or those with cardiac disease.

Pure Bulk Cathartics

1. *Vegetable polysaccharides*—these nondigestible gums include methyl cellulose, psyllium (Metamucil), and bran, which also has irritating qualities. These drugs act by absorbing water and providing bulk which then results in the urge to defecate. There is very slight danger in using these agents, but there have been reports of the bulk cathartic getting stuck in the esophagus in patients who have taken them without sufficient water.

2. *Saline cathartics*—these agents are soluble, but nonabsorbable salts which retain water by an osmotic effect in the colon. They generally act quickly and are used therapeutically in the treatment of poisoning and with certain vermifuges. Examples of the saline cathartics are magnesium sulfate, magnesium citrate, milk of magnesia, sodium phosphate and sodium sulfate. In patients with renal disease, the use of magnesium cathartics may result in hypermagnesemia and respiratory depression. Sodium retention may occur with use of the sodium containing cathartics especially in patients with cardiac failure and other salt retaining syndromes.

Irritants

1. *Anthraquinones (emodin)*—these include cascara sagrada, aloe, rhubarb and senna. These drugs may act by an irritant action on the myenteric plexus. Microscopic studies have shown damage to nerves in the myenteric plexus of chronic anthraquinone users or of mice given these agents. It is not known whether the anthraquinones caused this nerve damage or whether the constipation which necessitated the use of cathartics was related to the initial pre-drug nerve damage.

2. *Irritant resins such as jalap and podophyllum*—these agents are too irritating and are not to be used as cathartics. In fact, podophyllum is used as a keratolytic agent to remove warts.

3. *Irritant oils*—castor oil is hydrolyzed in the bowel to produce ricinoleic acid which is a small bowel stimulant. Croton oil is very toxic and may be lethal in very small doses.

4. *Phenolphthalein*—this is a tasteless, synthetic compound which stimulates large bowel motility. It produces cathartic action even when administered parenterally, but supposedly has no effect in the presence of complete biliary obstruction. This drug is a pH indicator producing a red color in the stool at an alkaline pH and patients taking this drug may believe that they have blood in their stools. A not uncommon complication of phenolphthalein use is a sensitivity reaction including skin eruptions.

5. *Isatin (oxindole) derivatives*—these may be the agents naturally found in prunes which give these fruits their cathartic action.

6. *Bisacodyl (Dulcolax)*—this drug is irritating on the upper gastrointestinal tract and is therefore administered in the form of enteric coated pills which should not be chewed. It is also useful when given by enema or suppository.

It should be remembered that certain cathartics including phenolphthalein may cross into the milk and cause diarrhea in a nursing infant.

7. *Calomel (Mercurous chloride)*—this agent supposedly acts by poisoning the mechanisms for fluid absorption in the gut, thereby causing watery green diarrhea. The green color is not due to a choleric effect of the calomel but rather to the presence of increased biliverdin in the stool. If this drug is not promptly evacuated in the feces, it may be quite toxic since retained mercury is absorbed and causes severe renal damage.

All clinicians are aware of the possible dangers of the use of cathartics in the presence of organic bowel disease such as intestinal obstruction or appendicitis. Nevertheless, the dangers of chronic cathartic use are often overlooked. Severe electrolyte imbalance may result from chronic cathartic use and

may mimic the toxic findings from diuretic overuse. The cathartic may cause severe dehydration, hyponatremia, hypokalemia and indeed shock in certain patients. Patients with watery bowel movements and depressed serum potassium should be suspected of cathartic abuse. These patients may deny taking these drugs and even if confronted with the truth will often refuse to abstain from the use of laxatives. Another complication of cathartic abuse is "cathartic colon." Radiographically, this condition shows an absence of colonic haustrations and a smooth colon wall with no irregularity, stiffening or thickening. The bowel is readily distensible and shows smooth, tapering constrictions. On sigmoidoscopy, a pale edematous mucosa or hyperpigmentation of the rectum and sigmoid (melanosis coli) may be seen. These findings are in no way similar to those of ulcerative colitis. It is, therefore, quite obvious that one can readily overlook and misdiagnose chronic laxative abuse. In fact, some of the diagnoses which have been in error given to these patients are "burnt-out" colitis, nephritis, diabetes insipidus, neurasthenia, pancreatic insufficiency, autonomic imbalance, ulcerative colitis, regional enteritis, stroke, primary hyperaldosteronism and Addison's disease. These errors have caused patients to be subjected to unnecessary therapeutic measures including surgery.

It is thus quite obvious that cathartics are by no means the benign drugs which most patients and many physicians consider them to be. Patients must be educated that there is seldom a need for laxatives and must be convinced of the fallacy of "autointoxication."

A NEW FILM FOR PROFESSIONAL AUDIENCES

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Recommended Facilities and Personnel for Respiratory Care

(The following is published at the request of the Committee on Respiratory Diseases, Charles Pokorny, M.D., Chairman. Submitted by the Commission on Scientific Study.)

With the increasing complexity of equipment and facilities for offering acute and chronic respiratory care there has come a need for attention to equipment and hospital facilities to render such medical care.

The patient in acute respiratory failure needs skill and attention which can be offered only by an organized medical and technical team. Monitoring and diagnostic aids are necessary to control the course of therapy on a 24-hour basis until the patient can once again sustain ventilation on his own. Proper control of ventilator equipment, maintenance of the patient's airway, plus other medical support, demand constant surveillance and adjustment depending upon the patient's response to treatment. Modern blood gas analysis techniques have demonstrated that objective data regarding ventilating status cannot be supplanted by clinical judgment alone. Inappropriate application of ventilator equipment or its malfunction can be disastrous to the patient's welfare. As a result, a special area of the hospital needs to be designated and organized with proper equipment. Specially trained personnel need to be available to bring 24-hour care when called upon.

In addition, certain equipment needs to be available for the patient with less acute respiratory problems. Materials, equipment and properly trained personnel are necessary to administer aerosols, oxygen therapy, ventilatory assistance, postural drainage techniques, etc., as indicated by physician prescription. Equipment for both acute and chronic care programs needs special attention to cleaning, maintenance and sterility.

An attempt to estimate both personnel and equipment needs for various size hospitals follows.

<i>Facilities and Equipment:</i>	<i>500 Beds</i>	<i>200 Beds</i>	<i>75-100 Beds</i>
Acute respiratory care beds			
As part of intensive care		1-3	1-2
Separate intensive care	4		
Volume cycled respirator	2	1	1
Pressure cycled ventilator	8	6	4
Ultrasonic nebulizer	6	4	2
Motor compressor nebulizer	20	12	8
Tracheostomy nebulizers, hoods, croup tents, Ambu bags, various airways and adapter fittings			
Blood Gas Electrodes	2 sets (24 hr. service)	1	1
Spirometer	yes	yes	yes
Lung Volume	yes	±	no
Diffusion tests	yes	±	no
Wright Peak Flow Meter	2	1	1
Wright Respirometer	1	1	1
<i>Personnel</i>	<i>500 Beds</i>	<i>200 Beds</i>	<i>75-100 Beds</i>
Salaried part or full-time physician director of			
Respiratory care, Pulmonary function, Inhalation treatment	yes	no	no
Physician, Internist, Anesthesiologist or Surgeon with respiratory training and experience designated as responsible for above functions	—	yes	yes
Respiratory nurse specialist	1-2	1	0
Intensive care nurses with respiratory care training ..	5	3	2
Inhalation therapists	4	2	part time
Pulmonary function technicians	2	1	part time
Respiratory care committee	yes	yes	yes
In service training program	yes	yes	yes

Cancer Page

Patient History:

A 79-year-old widow was seen by a surgeon because of a hard breast lump on the right with a large axillary lymph node. The patient insisted the breast lump was the site of an injury many years previously and had not changed. A mammogram showed a calcified area in the right breast.

At surgery the right axillary node was removed and it revealed metastatic carcinoma from the breast. A right radical mastectomy was performed and the carcinoma was identified at the site of calcification.

Comment:

All breast lumps must be viewed with suspicion, regardless of the clinical history.

—The Committee for Control of Cancer

The President's Message

DEAR DOCTOR,

The majority of changes come slowly; and the relationship between the physician with the M.D. degree and the physician with the D.O. degree is no exception. But change there has been and the amount has been great since my days in medical school.

At the last Clinical Session of the AMA, the House of Delegates approved the admittance to the ranks of organized medicine of qualified Doctors of Osteopathy. Several years ago the California Medical Association accepted those D.O.'s who had graduated from the School of Osteopathy in Los Angeles and who were then elected to membership by the component medical societies. This school now confers the degree of M.D. and has issued the degree to its previous graduates.

The inclusion of these physicians in organized medicine is not something new in the annals of medicine. Many other groups such as the Homeopaths and Eclectics were similarly included. Until a few years ago we were asked, on renewing our licenses, what kind of M.D. we were. Most of us put down Allopath.

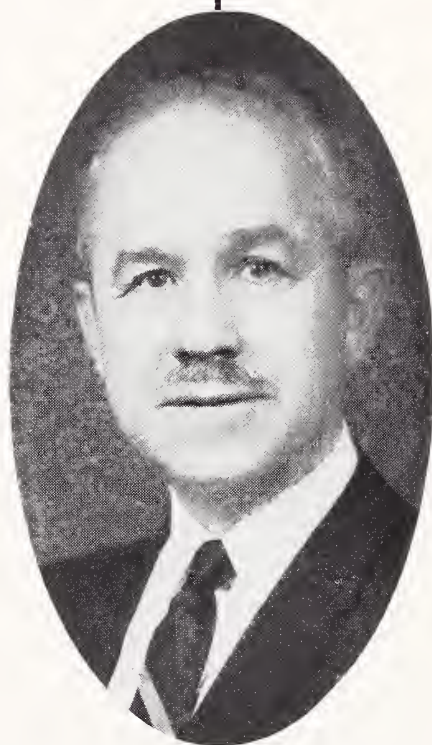
There are still five schools of osteopathy, and like some medical schools they are in financial difficulty. They will soon need some governmental help. Since there is a shortage of graduates, they will probably get it. This help will probably lead to governmental insistence on standards nearer those of Grade A medical schools.

Undoubtedly all osteopaths who are qualified to practice medicine and surgery will eventually be a part of organized medicine. I feel that the Kansas Medical Society should encourage the component societies to amend their constitutions, if necessary, and accept applications from those who are qualified.

Sincerely,



President





Healing Arts Act Amendments

After two years of work with the Board of Healing Arts and others, and after the House of Delegates acted to request certain major changes, a long series of amendments to the Healing Arts Act were presented to the legislature. These were adopted virtually without amendment. The new law will become effective July 1, 1969. Listed here are the principal changes.

There were a number of amendments relating primarily to the operation of the board itself—salaries, per diem, and so forth. Deleted will be the requirement that licenses must be filed in the office of the county clerk. Changed also is the requirement that the governor must appoint from a list supplied by the professional associations. This was the one amendment not desired by the associations involved. In the future, the state association *shall* submit three or more names for each vacancy; the governor *shall* give consideration to this list in making his appointment.

Because national organizations are now giving adequate examinations in the basic sciences, the Kansas Board of Basic Science Examiners will be abolished. The Healing Arts Board is given the responsibility of either giving the basic science examination or, if satisfied that the quality of another examination equals standards set up in Kansas, the board may accept an examination given elsewhere. This includes Part I of the National Board of Medical Examiners.

New also is the creation of several different categories of licensure. The permanent license in unchanged. The applicant must be 21 years of age, of

good moral character, and a citizen of the United States.

At the request of the Medical Society, the legislature directed the Healing Arts Board to issue provisional licenses to applicants who meet all requirements, who comply with all rules and regulations, and who pass the examinations given by the board, except that they are not citizens of the United States. They may be granted an annually renewable license for five consecutive years.

Another category of licenses will be known as the fellowship license. This will legalize the agreement currently existing between the Division of Institutional Management and the Board of Healing Arts. A fellowship license enables a physician to practice within an institution under the supervision of the Division of Institutional Management or the penal system of this state. This license is valid in no other place and exists only for the duration of their employment in such state institution.

A third change is known as the temporary permit which applies to residents only for their work within an institution approved for such training. It prohibits them from engaging in the private practice of medicine.

U. S. Savings Bonds and Freedom Shares account for approximately 23 per cent of the privately-held portion of the Government's debt. They are described by Treasury officials as the keystone of the national debt structure.



Blue Shield

Blue Shield Board of Directors

In view of some recent apparent confusion about the Blue Shield Board and how it is elected, it seems desirable to publish the following information:

- The 1969 Blue Shield Board is composed of 25 Doctors of Medicine and 14 public representatives.
- Participating physicians in each council district have a direct voice by mail ballot in choosing the physician representatives of the district.
- In other words, the physicians themselves have complete control over who is sent to the Blue Shield Board to represent them.

Here is the way the election process works:

1. In each council district there is a District Blue Shield Relations Committee composed of 8 to 15 physicians.
2. The chairman of this committee is appointed by the president of the Kansas Medical Society.
3. When a Board vacancy occurs in the district, due to regular expiries of terms, the Blue Shield Relations Committee nominates at least two physicians in the district.
4. Participating physicians *elect* their representative from this slate by mail ballot.
5. Board members thus elected serve a three year term. They are eligible to serve an additional term of three years, *if elected to a second term by their constituencies*.

Kansas Medical Society representatives on the Blue Shield Board:

James L. McGovern, M.D., President, Wellington;
Carl C. Gunter, M.D., 1st Vice-President, Quinter;

All articles published in this section are prepared by the staff of Kansas Blue Shield.

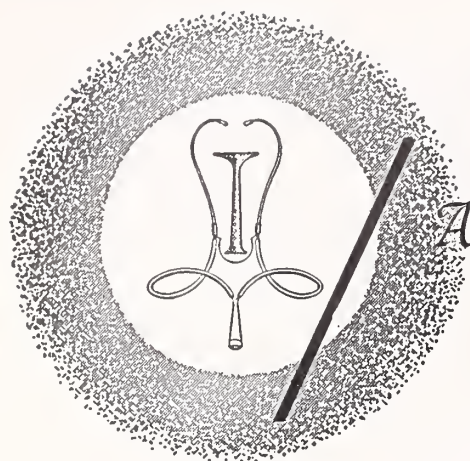
Henry Dreher, Jr., M.D., 2nd Vice-President, Salina;
Sam Zweifel, M.D., Secretary-Treasurer, Kingman;
Robert K. Purves, M.D., Past-President, Wichita;
Emerson Yoder, M.D., Denton; Max Allen, M.D., Kansas City; Robert Horseman, M.D., Shawnee Mission; H. L. Bogan, M.D., Baxter Springs; James S. Hunter, M.D., Manhattan; Clovis Bowen, M.D., Topeka; Leo F. McKee, M.D., Cottonwood Falls; Norman Overholser, M.D., El Dorado; J. E. Roderrick, M.D., Salina; R. M. Glover, M.D., Newton; W. H. Fritzemeier, M.D., Wichita; Glen Hutchison, M.D., Hays; W. E. McAllaster, M.D., Great Bend; Jack Randle, M.D., Bucklin; Asher Dahl, M.D., Colby; Cecil Petterson, M.D., Syracuse; Alex C. Mitchell, M.D., Lawrence; and Ex Officio members John L. Morgan, M.D., President, Kansas Medical Society, Emporia, and Leland Speer, M.D., President-Elect, Kansas Medical Society, Kansas City.

Council district board members elected or re-elected in 1969 and the districts they represent are as follows:

Robert Horseman, M.D., Shawnee Mission, District 3; Robert Peterson, M.D., Emporia, District 7; N. H. Overholser, M.D., El Dorado, District 8; William H. Fritzemeier, M.D., Wichita, District 11; Ward Cole, M.D., Wellington, District 12; Asher W. Dahl, M.D., Colby, District 16.

Results of the 1969 state subscriber elections were not available when this was written, as their election is held during the latter part of April.

NOTE: Changes in the officers of the Board which may occur in the annual meeting will be reported later.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

MAY

- May 23-24 Joint scientific meeting of the Kansas and Missouri Blood Bank Associations, Plaza Inn, Kansas City, Missouri. Of special interest will be a meeting on the evening of May 23 for all physicians who are interested in knowing about the new advances in typing, including typing of tissue for transplants. For more information contact: Perry Morgan, Ph.D., Community Blood Bank of Kansas City Area, Inc., 4040 Main St., Kansas City, Missouri 64111.
- May 23 Hyperglycemia in Infants and Diabetes in Children, 7th annual pediatric seminar, Baptist Memorial Hospital, Kansas City, Missouri. Marvin Cornblath, M.D., professor and head of Dept. of Pediatrics, University of Maryland School of Medicine, guest speaker. Write: Medical Staff Office, Baptist Memorial Hospital, 6601 Rockhill Road, Kansas City, Missouri 64131.

JUNE

- June 2-5 Southwestern Surgical Congress, Sahara Tahoe Hotel, Lake Tahoe, Nevada. Write: Jack A. Barney, M.D., 301 Pasteur Building, Oklahoma City 73103.
- June 10-13 54th annual convention, Catholic Hospital Association, Minneapolis, Minnesota. Write: Convention Coordinator, The Catholic Hospital Association, 1438 S. Grand Avenue, St. Louis 63104.
- June 23-26 American Orthopaedic Association, The Homestead, Hot Springs, Virginia. Write Albert B. Ferguson, M.D., 125 DeSoto Street, Pittsburgh 15213.
- June 25-27 21st annual Summer Clinic, Vail, Colorado. For information: Joseph Butterfield, M.D., Denver Children's Hospital, 1056 E. 19th Avenue, Denver 80218.

JULY

- July 11-17 Woman's Auxiliary to the AMA, Waldorf-Astoria, New York. Write: Miss Margaret N. Wolfe, Exec. Secretary, 535 N. Dearborn Street, Chicago 60610.
- July 13-17 118th annual convention, American Medical Association, New York. Write: E. B. Howard, M.D., Acting Exec. Vice President, 535 N. Dearborn Street, Chicago 60610.
- July 14-19 7th International Congress of Clinical Pathology, Montreal, Canada. Write: Box 8, Station "G," Montreal 18, Canada.
- July 18-19 Rocky Mountain Cancer Conference, Brown-Palace Hotel, Denver. Write: D. G. Derry, Exec. Secretary, Colorado Medical Society, 1809 E. 18th Avenue, Denver 80218.

POSTGRADUATE EDUCATION

University of Colorado:

- June 16-20 *Crisis Counseling* (Estes Park)
- June 30-July 3 *Ophthalmology* (Colorado Springs)
- July 21-25 *Internal Medicine* (Estes Park)
- July 31-Aug. 2 *Dermatology* (Aspen)

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Hahnemann Medical College and Hospital, Philadelphia:

- July 7-11 *Clinical Electrocardiograph Interpretation*
- July 14-18 *Interpretation of Cardiac Arrhythmias*

For further information write Hahnemann Medical College and Hospital, 230 N. Broad Street, Philadelphia 19102.



Personalities—IN KANSAS MEDICINE

The American Academy of General Practice has announced the appointment of **Lawrence E. Leigh**, Overland Park, to the Committee on Cancer, and **John N. Blank**, Hutchinson, to the Committee on State Officers' Conference. They will each serve a one-year term.

Thomas P. Butcher, Emporia, was the principal speaker at the meeting of the Chase County Chapter of the American Cancer Society, held in Cottonwood Falls in March.

Austin J. Adams, Wichita, spoke on "Problems in Adoption as Seen in Future Perspective," at the annual meeting of the Kansas Children's Service League. The meeting was in Wichita in February.

An award for outstanding citizenship was presented in February to **James E. Wallen**, Ottawa, by the Ottawa Chamber of Commerce.

Dr. and Mrs. B. Morris Hopkins, Scott City, travelled to New York City in February, where Dr. Hopkins attended the annual scientific session of the American College of Cardiology.

George E. Burket, Jr., Kingman, past president of the AAGP, and **George A. Wolf, Jr.**, dean of the University of Kansas School of Medicine, participated in the dedication of the Republic County Hospital addition at Belleville in February.

William M. Scales, Hutchinson, announced his retirement the first of March, after 36 years of practice there.

Bill L. Braden, Wamego, attended the annual Dallas Southern Clinical Conference in March.

C. Herbert Crane, Manhattan, was elected chairman of the Northern Flint Hills Health Planning Council in February. The council is comprised of Riley, Geary and Clay counties, and Fort Riley.

A symposium on Nursing and the Cardiac Patient was held in Dodge City in March. **Jack E. Randle**, Bucklin, participated in the program, showing slides on medicine in Russia, and answering questions pertaining to the medical and nursing professions in that country. **Clair Conard**, Dodge City, presided over the meeting.

Dr. and Mrs. C. Everett Brown, Stafford, and **Dr. and Mrs. Louis Graves**, St. John, attended the Southwest Allergy Forum in Mobile, Alabama, in March.

The Kansas Chapter of the Arthritis Foundation elected **Low Purinton**, Wichita, president for the current year. **John Lynch**, Topeka, was elected to the governing board.

After 25 years of medical practice in Winfield, **A. Y. Wells** announced his retirement March 1.

Patricia Schloesser, Topeka, director of the Division of Maternal Health, received a service award for her outstanding contribution to the cause of saving the lives of children afflicted with cystic fibrosis. The award, given by the National Cystic Fibrosis Research Foundation, was presented to Dr. Schloesser in March.

H. V. Bair, Parsons, has accepted three-year appointments to the mental retardation committee of the American Psychiatric Association and to the council of the American Association on Mental Deficiency. Dr. Bair is also a member of the Joint Commission on Mental Health of Children and recently attended a meeting of the commission in Washington, D. C.

Robert W. Brown, a staff physician at KUMC, has been named coordinator of the Kansas Regional Medical Program. He replaces Charles E. Lewis who will move to Boston in June to become professor of social medicine and assistant director of Harvard University Center for Community Health and Medical Care.

Sam Zweifel, Kingman, has accepted a Peace Corps assignment in either Guatemala City, Guatemala, or Rio de Janeiro, Brazil. The assignment will be for a two-year period, after which he will resume his practice in Kingman.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Bruce M. Burdick, M.D.
The Menninger Foundation
Topeka, Kansas 66601

Paul E. Kauffman, M.D.
Medical Arts Building
Hesston, Kansas 67062

Merlin G. Kirby, M.D.
P.O. Box 390
Goodland, Kansas 67735

James H. Ransom, M.D.
2101 West 10th
Topeka, Kansas 66604

John L. Reese, M.D.
4th & Maine Streets
Lawrence, Kansas 66044

George M. Sabin, Jr.,
M.D.
321 North Topeka
Wichita, Kansas 67202

Robert L. Ward, M.D.
Tribune Clinic
Tribune, Kansas 67879

Vernon E. Yoder, M.D.
Prairie View Hospital
Newton, Kansas 67114

PEOPLE-TO-PEOPLE

(The following was received from Cyril V. Black, M.D., of Pratt, and will be of interest to many—Editor.)

Before the Kansas doctors left on the People-to-People trip last August, Dr. Burket had some bronze medals struck. They were about the size of a dollar. On one side was "Kansas Medical Goodwill Mission." On the other side was "People to People . . . Understanding is the Passport to Peace."

We had some of the medals left and I took them with me on the International College of Surgeons 'Round the World Tour. On both trips we attended medical meetings and visited hospitals and clinics. At times we gave these medals to people other than doctors. Most of us gave our medals away and there was very little ado about them.

In Hong Kong, I met a very nice Chinese merchant who was very gracious and went out of his way to be nice to me. After paying for my purchases, I presented him with one of the medals. He was completely overwhelmed by this act. Tears came into his eyes and he said, "You do me a much great honor. I must do something for you." He asked me to take my choice of the cuff links and tie tacks he had in his display case. After arriving home, I received the following letter:

Dear Sir:

I Sincerely hope this letter finds you are on good health and good luck, with the same regards to your wife and good friend. Well, I believe you still remember me and I do the same thing to you, or may I say hello to you now and may you are very well.

We know each other from the date you had been in Hong Kong for a few days holidays. Anyway, I am nicely to meet you and I truly thank very much for your kindness and you give me such good memories gift. I would appreciate and keep it for ever and I remember you too. Anyway, I write you for I let about me that I am fine and I trust you the same about me. Well, by the way, I sincerely hope that you would have an extremely happy coming X'mas and New Year. Anyway, may I stop here and please excuse me a lot if I make any mistakes in this letter. However, nice to meet you and glad to receive your reply. May good luck are belong to you for ever. Bye

Yours, Truly Friend,
Thompson Lau

(It might be worthy to note this characteristic of the Chinese. When you do something which they feel gives them great face, they feel forever indebted to you.)



ATLAS OF EAR SURGERY, by William H. Saunders and Michael M. Paparella. C. V. Mosby Company, St. Louis, 1968. 362 pages illustrated. \$27.50.

Anyone believing ear surgery is a relatively new specialty should look at the first chapter where the long history is outlined.

All phases of ear surgery are covered by excellent diagrams and a brief explanation of the anatomy and the different procedures.

It would take a fairly complete working knowledge of the anatomy and of the numerous procedures for this book to be of any great value as a reference.

Diagnostic workup and medical treatment were purposely omitted.—R.R.P.

LEARNING MEDICAL TERMINOLOGY, STEP BY STEP, by Clara Gene Young and James D. Barger. C. V. Mosby Company, St. Louis 1967. 327 pages illustrated. \$7.50.

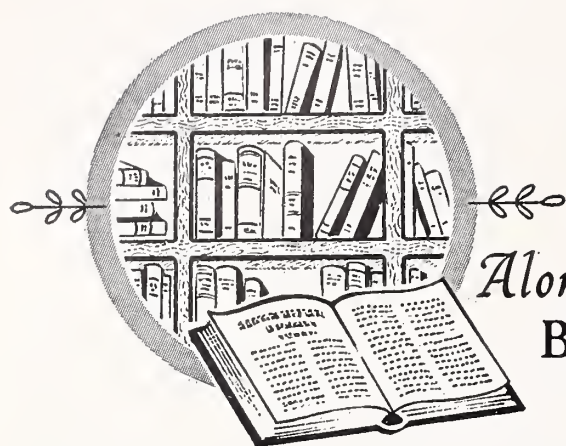
At first thought, the inclusion of a chapter on the completion of medical insurance claims might seem inconsistent with the title of Young and Barger's new edition of *Learning Medical Terminology, Step by Step*. The inclusion of this chapter is, however, consistent with the purpose of the book which is that of a comprehensive, didactic training manual for the medical office assistant. Of only slightly lesser importance will be the role of this volume as a handy office reference, not, of course, meant to supplant the medical dictionary. The authors build their teaching method on two well-grounded principles, namely, that even without a classical knowledge of Latin or Greek, familiarity with certain key roots, prefixes and suffixes will assist in the spelling of the medical terms, and secondly, that even the slightest comprehension of anatomy and physiology will contribute to some understanding of those

terms. While this thought is not novel, the organization of the book is such as to further assist the transcriptionist in searching for the vaguely understood term by gathering words into chapters arranged by anatomic system. The chapters relating to laboratory tests and abbreviations and symbols may well serve as a source for deciphering the hastily scribbled note filled with abbreviated medical jargon. Sample reports include those to be transcribed by the medical records secretary, such as history and physical forms, operative notes, surgical pathology reports and autopsy protocols.

The text, if it serves its purpose completely, may provide you with an assistant so competent you won't be able to afford her.—L.W.H.

CANCER—A MANUAL FOR PRACTITIONERS (4th Edition), American Cancer Society, Massachusetts Division, 1968. 390 pages. \$3.00.

This thoroughly revised edition has an illustrious publication committee addressing itself to epidemiology, pathology, paraneoplastic syndromes, cytology and the common other aspects of cancer, ranging from symptoms, examinations and principles of treatment, to cancer-control, and the American Cancer Society. It is an excellent digest that the Kansas Division of the American Cancer Society might well place in the hands of all practicing physicians of the state. The practice of some states, distributing the paperback editions to third-year medical students, should be encouraged. Those treating cancer should be advised that the hard-bound edition currently costs \$3.00, and the paperback costs \$2.00, plus postage and handling charges, from the American Cancer Society, Inc., Massachusetts Division, 138 Newberry Street, Boston, Massachusetts 02116. The book is some 390 pages in length, printed on good paper in legible form with an adequate index.—N.V.T.



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Angell, James Cyril. The acute abdomen for the man on the spot. 2d ed. Philadelphia, Lippincott, 1968.
- Barker, Roger G. Ecological psychology; concepts and methods for studying the environment of human behavior. Stanford, Calif., Stanford University Press, 1968.
- Berrill, Norman John. The person in the womb. New York, Dodd, Mead, 1968.
- Bisseru, Belideo. Diseases of man acquired from his pets. B. Bisseru. Philadelphia, Lippincott, 1967.
- Caldwell, William Vernon. LSD psychotherapy; an exploration of psychedelic and psycholytic therapy. New York, Grove Press, 1968.
- Cureton, Thomas Kirk. The physiological effects of exercise programs on adults. Springfield, Ill., Thomas, 1969.
- D'Abreu, A. L. Intrathoracic crises. New York, Appleton-Century-Crofts, 1968.
- Epstein, Bernard S. The spine; a radiological text and atlas. 3d ed. Philadelphia, Lea & Febiger, 1969.
- Graham, James. So, you're going to the hospital. St. Louis, W. H. Green, 1968.
- Howells, John G. Modern perspectives in world psychiatry. Edinburgh, London, Oliver & Boyd, 1968.
- Kiser, Clyde Vernon. Trends and variations in fertility in the United States. Cambridge, Harvard University Press, 1968.
- Lloyd, Wyndham Edward Buckley. A hundred years of medicine. London, Duckworth; New York, Humanities Press, 1968.
- Messick, David M. Mathematical thinking in behavioral sciences. San Francisco, W. H. Freeman, 1968.
- The Molecular basis of life; an introduction to molecular biology. San Francisco, W. H. Freeman, 1968.
- National Symposium on Urinary Tract Infection, 1st. London. Urinary tract infection. . . . London, New York, Oxford University Press, 1968.
- Pearce, John. Migraine; clinical features, mechanisms and management. Springfield, Ill., Thomas, 1968.
- Pickering, George White. High blood pressure. 2d ed. New York, Grune & Stratton, 1968.
- The politics of mental health; organizing community mental health in metropolitan areas. New York, Columbia University Press, 1968.
- Reynolds, Frank Walker. Adult health; services for the chronically ill and aged. New York, Macmillan, 1967.
- Riklan, Manuel. Subcortical correlates of human behavior. . . . Baltimore, Williams & Wilkins, 1969.
- Senn, Milton J. E. The firstborn; experiences of eight American families. Cambridge, Harvard University Press, 1968.
- Sharp, Clive L. E. H. Presymptomatic detection and early diagnosis; a critical appraisal. Baltimore, Williams and Wilkins, 1968.
- Silverstein, Harry. The social control of mental illness. New York, Crowell, 1968.
- Sim, Myre. Basic psychiatry. Edinburgh, Livingstone, 1968.
- Stark, Richard Boies. Cleft palate: a multidiscipline approach by 19 authors. New York, Hoeber Medical Division, Harper & Row, 1968.
- Wang, Yen. Advances in dynamic radioactive scanning, compiled and edited [by] Yen Wang. Springfield, Ill., Thomas, 1968.
- Winter, Chester C. Practical urology. St. Louis, Mosby, 1969.
- Wood-Smith, Frances Geoffrey. Drugs in anaesthetic practice. New York, Appleton-Century-Crofts, 1968.



ORIS G. KELLER, M.D.

Dr. Oris G. Keller, Pittsburg, died on March 14, 1969, at the age of 90.

Dr. Keller was born on August 2, 1878, in West Virginia. He lived in Franklin, Kansas, for 50 years before moving to Pittsburg in May 1968. He was graduated from the Kansas City School of Medicine in 1908. Before entering medical school, he taught school in West Virginia for four years.

Surviving Dr. Keller are his wife and daughter.

VERN L. PAULEY, M.D.

Dr. Vern L. Pauley, Wichita, died on March 25, 1969. He was 69 years old.

Born in Hamburg, Iowa, on January 20, 1901, Dr. Pauley graduated from the University of Iowa School of Medicine in 1924. After completing his residency training, he practiced in Halstead, Kansas, for six years. In 1932 he moved to Wichita and started private practice as a surgeon.

Dr. Pauley is survived by his wife, two daughters, and his mother.

BOOKLET ON DRUG ABUSE

"In the final analysis, playing games with the truth has historically been demonstrated to be a mistake."

These are the words of a psychologist at the National Institute of Mental Health in Washington, speaking about the need to communicate honestly with young people on the use of drugs. This statement also provides the basis for a 48-page book on drug abuse published by the National Association of Blue Shield Plans. It is offered free by most Blue Shield Plans throughout the United States.

Drug Abuse: The Chemical Cop-Out is primarily aimed at dispelling the romantic illusions of drugs and separating the facts from the myths for both adults and young people. While authorities generally agree that most people suffer from misinformation, they also concede that parents are perhaps more lacking in knowledge about drugs than their teenagers. John Finlator, associate director of the Federal Bureau of Narcotics and Dangerous Drugs, says:

"There is one thing I think we are all missing the boat on. That is, we, who are in authority, find ourselves pretty ignorant about the drug problem around us. The school teacher, the parent, the school administrator, the businessman, and the housewife are all ignorant about the problem. Thus, when a young person starts talking about drugs, neither his parents nor his teachers are really able to keep up with him. If we are going to solve the drug problem, we must do so through an effective educational process, and one that can be accepted."

The four-color booklet features many photographs taken during the filming on three television specials on drug abuse being sponsored on television stations by local Blue Shield Plans. The three films are narrated by Robert Mitchum, Paul Newman, and Rod Steiger respectively.

In addition to providing a comprehensive description of popular drugs being abused, *Chemical Cop-Out* explains many of the physical and psychological effects of such drugs as marijuana, the amphetamines, LSD, mescaline, and others. It also explores some of the sociological and psychological reasons for abusing drugs and how society is reacting to the use of chemicals as a means for escape. In the booklet, Dr. Robert Petersen of the National Institute of Mental Health observes:

"Parents are frightened, and you can certainly understand why they are concerned. If for no other reason than they tend to believe the notion that a joint of marijuana is the first step to becoming a hopeless junkie, or something of this sort, to the very realistic dangers of the kid getting arrested."

Dr. Alfred Freedman of the New York Medical

College comments on one unfortunate aspect of youth's involvement with drugs.

"It's not so much the physical dangers of drugs which do exist or that they will become criminally insane, which is ridiculous, but rather it's the fact that they are developing an inward reality that is most meaningful to them rather than maintaining a concern with society in general. We are in very different times, it seems to me, and the participation of everyone, particularly the younger people, is extremely important. If the focus of their lives becomes centered upon drugs, which often happens, then I think we are losing something."

The booklet also explores the distribution system of drugs including highly profitable heroin and somewhat less lucrative, but nonetheless popular, marijuana. For example, it is pointed out that a kilo of marijuana, which starts out selling for \$2, may wind up bringing as much as \$500.

Methods for treating hard drug addicts are also explored. The work at various research and therapeutic centers, including the federally-operated hospital in Lexington, Kentucky and Daytop Village in New York City are discussed.

Concluding chapters present realistic insight into the problem by prominent men in the fields of law enforcement, medicine, and psychology. It is pointed out that society must take the initiative in seeking to change those factors in the environment which are conducive to using drugs as a means for escape.

Blue Shield is distributing the booklet as part of a public information program on drug abuse.

YOUNG CAR THIEVES NEED YOUR HELP

**DON'T GIVE IT
TO THEM**

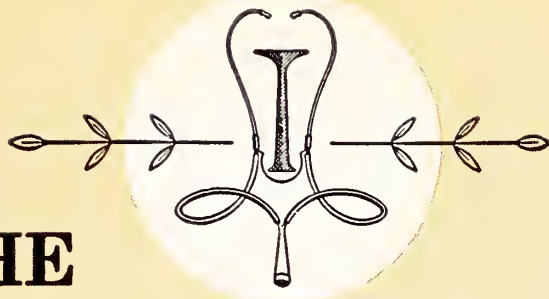
Lock your car. Take your keys.



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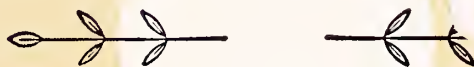


HELP PREVENT CRIME CAMPAIGN



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Society

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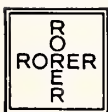
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The JOURNAL of the KANSAS MEDICAL SOCIETY

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References:

- (1) Siver, R. H.: CMD, 21:109, September 1954. (2) Frykman, H. H.: Minn. Med., 38:19-27, January 1955. (3) McGivney, J.: Tex. State Jour. Med., 51:16-18, January 1955. (4) Quehl, T. M.: Jour. of Florida Acad. Gen. Prac., 15:15-16, October 1965. (5) Weekes, D. J.: N.Y. State Jour. Med., 58:2672-2673, August 1958. (6) Weekes, D. J.: EENT Digest, 25:47-59, December 1963. (7) Abbott, P. L.: Jour. Oral Surg., Anes., & Hosp. Dental Serv., 310-312, July 1961. (8) Rapoport, L. and Levine, W. I.: Oral Surg., Oral Med. & Oral Path., 20:591-593, November 1965.

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Causes of Accidents

Human Factors in Aircraft Accidents

WILLIAM J. REALS, M.D.,* *Wichita*

ON FEBRUARY 17, 1908, Orville Wright was piloting one of the first of the world's military airplanes, the Wright Flyer. The occasion was a field trial of the new "aeroplane" at Fort Meyer, Virginia. His passenger was First Lt. Thomas E. Selfridge, Field Artillery, who was a member of a Special Aeronautical Board evaluating the plane. Suddenly a propeller blade separated in flight. The aircraft went into a spin and crashed. Wright suffered a fractured left leg, and Selfridge died (*Figure 1***).¹ Selfridge Air Force Base in Michigan is named in his honor.

Lieutenant Selfridge became the first person to die in an American aircraft accident. An autopsy was conducted at the post hospital and the findings proved that Selfridge had died as a result of a severe skull fracture. A later photograph during these early days of pioneer flying showed another army pilot, Lt. "Hap" Arnold, seated in the same rebuilt Wright Flyer wearing a leather football helmet (*Figure 2***). It is assumed that Arnold did this to protect his head in the event of another accident.

Lieutenant Arnold became General Arnold of World War II fame, chief of the US Army Air Force that contributed so much to victory.

His early adoption of the leather football helmet is the first and probably one of the best examples of the application of medical knowledge to the prevention of injuries from aviation accidents. Today we speak of "human factors" in aircraft accidents. This is the application of medical and pathological findings to aviation and aviation safety. This application, for example, led aviation through several steps in protecting the pilot's head. Following the use of the early day football helmet, protective head gear was abandoned and flyers used the leather helmet of World War I, then the "50 mission crush cap" of World War II. Today, military aviators flying high performance jets are wearing a plastic helmet comparable to the Hap Arnold football helmet of 1908 as a protector headgear.

Although General Arnold was apparently the first flyer to apply human factors information to aviation safety, the lesson was soon forgotten. For many years investigators sent to probe aircraft accidents searched for mechanical, weather, or pilot error reasons for such accidents. Little attention was paid to the physiological effects on the pilot, or whether increased safety protection of the pilot could have reduced fatalities or the extent of injuries. Ignored also was

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Presented before the Great Plains Industrial Medical Association, Kansas City, Missouri, September 7, 1967.

** Photographs first published in "The Medical Profession in Air Safety" by F. W. Lovell, M.D. and Frank B. Berry, M.D., *Annals of Surgery*, 153:624-638, 1961. (Official USAF photographs)



Figure 1. The Wright Flyer moments after the crash at Fort Meyer, Virginia, February 17, 1908. Selfridge is on the ground to the right. (Official USAF photograph)

the valuable information which could have been obtained from a detailed study of injury patterns of crash victims by postmortem examination.

When jet transport flying began in the early '50's, it was accompanied by two catastrophic accidents occurring in 1954. Two British Comets exploded in flight off the seacoast of Italy in January and April of that year. After bodies of the victims were recovered from the shallow ocean, autopsies were carried out at the scene by pathologists of the Royal Air Force. The findings indicated that nearly all of the passengers had suffered skull fractures before death and had unusual changes in the lungs. Subsequently, it was found that in both planes the fuselage had failed at high altitude, causing an explosive decompression. The victims had been blown out of the aircraft immediately following the decompression, suffering head injuries as they struck broken metal in the fuselage. The head and lung injuries were the first clue that a breakup of the jets had occurred and helped identify the exact area of failure.² The rest of the Comet story is well known. But the episode established internationally the value of autopsy investigations of fatal aircraft accidents. So began an awareness of the pathologist's role in an important field of aviation medicine.

Pathologists' participation in aircraft accident investigation in the United States came about in almost as dramatic a manner as the Comet accidents.

On January 6, 1960, a National Air Lines DC-6 disintegrated in flight near Bolivia, North Carolina. The scheduled flight was enroute to Miami from New York early in the morning. Federal authorities flew to the scene and began their investigation. They were aware of the medical aspects of the Comet investigations and asked for medical assistance when they saw the large number of fatalities. An Air Force pathologist and flight surgeon, Major F. Warren Lovell, was sent to the crash site by the Armed Forces Institute of Pathology, Washington, D. C.



Figure 2. Lt. "Hap" Arnold seated in the rebuilt flyer. Note the football helmet on his head. (Official USAF photograph)

One passenger had injuries that recalled to Dr. Lovell the results of land mine casualties seen during wartime service. Moreover, this particular body was located 16 miles from the main wreckage, far from the other bodies. Autopsy examination of the body revealed unusual injuries, with partial amputation of the lower extremities and left arm. Postmortem x-rays revealed numerous small metal objects driven into the body, which later were found to be wire. Further, Mr. Bernard C. Doyle and the human factors team sent by the Civil Aeronautics Board (CAB)[§] found deposits of nitrate and residual chemical deposits left by a dynamite explosion. Also, part of a human leg was discovered in an overhead hat rack. This proved to be a part of the separated body under study. Driven into the leg was a brass faceplate from a small alarm clock.

Following further study, the CAB team concluded that the crash was caused by an explosion charge under the seat of the passenger whose body was found 16 miles from impact. An investigation also revealed that this particular passenger had been heavily insured shortly before the accident. The autopsy

[§] Since 1967 safety functions transferred to National Transportation Safety Board, Department of Transportation.

had provided the clue which eventually led to the solution of the cause of the accident.

Pathologists have found that there are three basic human factors involved in an airplane accident. These are: (1) environmental; (2) pre-existing; and (3) trauma (*Table 1*).

TABLE 1[‡]
FACTORS INVOLVED IN
AIRCRAFT ACCIDENTS

- | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>I. Environmental Factors</p> <p>(a) Altitude—hypoxia, decompression</p> <p>(b) Speed—G forces, spatial disorientation, blast</p> <p>(c) Toxins—carbon monoxide, fuels, odors</p> <p>(d) Temperature—excessive heat, cold, humidity</p> <p>(e) Noise—auditory effects, vibration</p> <p>(f) Stress—pathology of terror</p> <p>II. Traumatic Factors</p> <p>(a) Protective equipment</p> <p>(b) Escape</p> <p>(c) Aircraft design</p> <p>III. Pre-existing Disease</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

[‡] Frank M. Townsend, "The Utilization of Pathology in Aircraft Accidents," reprinted from *Medical Aspects of Flight Safety*, Agardograph 30, 1959, New York: Pergamon Press.

Environmental factors include death from the effects of fire during or following an accident. Alcohol in the blood stream is another factor and may be found in accidents involving drinking. Drugs such as barbiturates, tranquilizers, and antihistamines, may also be found should the pilot have taken any of these before flight. Environmental factors, in addition, include the effects of hypoxia due to exposure to high altitude or to sudden decompression. In the same category, carbon monoxide may be found after a crash as having been present in the cockpit while in flight or resulting from fire before or after impact.

Pre-existing disease is the second major human factor. It is well known that there is a significant increase in heart disease in older individuals. Pilots have suffered heart attacks while flying. This was true in the case of a 47-year-old male private pilot who had no significant past medical history. He was flying his light, single engine plane with three passengers aboard. Suddenly, while in flight, the pilot experienced severe chest pain and slumped over the controls. The pilot's wife, although not a pilot herself, recovered control and successfully landed the plane. The pilot was dead on landing. At the autopsy the pathologist found acute coronary thrombosis to be the cause of death. Most pre-existing disease problems in fatal accidents involve the heart and the cardiovascular system.^{3, 4}

In still another fatal accident, a 34-year-old male laboratory technician crashed shortly after take off in a light aircraft.

After breaking ground the plane rose to 150 feet in the traffic pattern. Unexplainably, it then nosed over to a 70 degree angle and struck the ground. The investigation revealed no mechanical failure. But the pilot's friends said he had complained of chest pains and had performed laboratory tests on himself. Neither the chest pain nor the laboratory findings had been reported to his physician when he was examined for his medical certificate. Here, again, the autopsy showed that the young man had suffered a coronary occlusion and had died in flight.

A pre-existing disease condition has also been reported by Dr. Robert L. Wick. He wrote an article in the June 9, 1963, issue of *Pilot*⁵ entitled "The Rotating Beacon: Friend or Foe," describing how the rotating beacon on an aircraft may give flicker vertigo to pilots who have undiagnosed epilepsy. Perhaps a very small number of pilots would be affected in this way. But, it is a good example of human factors related to flying safety—and an excellent illustration of the effects of a pre-existing disease.

Dr. Charles R. Harper and Dr. William R. Albers reported a study of pilots involved in 158 general aviation accidents in 1963. Their article in August, 1964, "Alcohol and General Aviation Accidents," highlighted the need for "medical and human factor studies in civil aircraft investigations."⁶ They emphasized that "civil aircraft today are well designed and constructed." Structural or mechanical failure is rare when airframe or engine limits are not exceeded. They stated that "human and medical factors represent a great unknown body of knowledge in the man-machine-environment complex," and that . . . "this area holds the greatest promise for reducing the accident, injury and fatality rates."

As support for these observations, the Harper-Albers report summarized the results of the 158 accidents cited. In 35 (4%) of these accidents, the pilots involved were found to have elevated blood alcohol levels at postmortem examinations. Many investigators have urged further studies of alcohol and flying to demonstrate the hazards to pilots. Most pilots do not realize that at altitudes of 6,000 to 8,000 feet there is an increased effect from alcohol, even in relatively small amounts, due to lowered partial pressure of oxygen in the atmosphere.

Trauma is the third human factor in aircraft investigations linked to causes of death. An example of trauma was seen in the DC-6 case described earlier, due to the presence of foreign metal at autopsy as well as the missing leg. In commercial aircraft crashes with forward seat configuration, a large number of fractured skulls and fractured lower legs and limbs are observed. It is known that the human body

cannot tolerate high G forces in the forward-facing position, unless adequately restrained. Shoulder harnesses and protective helmets will do much to protect the body, especially in light aircraft accidents which are not otherwise survivable. Analysis of the trauma found at autopsy from large numbers of this type of aircraft accidents has identified the head and legs as the areas of the body suffering the most damage in crashes. These analyses have suggested, perhaps even demanded, the protective measures needed.⁷

Richard Collins, an aviation writer, recently reported the 1966 annual scientific meeting held in Las Vegas by the Flying Physicians Association.⁸ His summary of the sessions included a panel on survivability and safety. Collins said that:

— "40 per cent of all fatal general aviation accidents are survivable."

—" . . . use of the shoulder harness and hard hats have the potential to cut the present number of fatal accidents from 500 to 300, and fatalities from 1,000 to 600."

The flying physicians at the meeting also discussed agricultural planes, and the work done on their interiors. As a result, Collins noted, " . . . ag flying's serious accident record is becoming something for the rest of us to envy. They bust up a fair share of the new generation ag-planes, but the pilot seldom even gets a Purple Heart!"

The examination of great numbers of victims has assisted in the identification of unusual injuries that do not seem to follow the typical injury pattern. The North Carolina DC-6 crash was solved because a pathologist quickly identified one body as having a bizarre injury pattern not usually seen. Patterns of trauma are characteristic of both small and slow aircraft, as well as high performance jets. Helicopter accidents also produce unique injury patterns of trauma which can be readily identified.⁹

The present estimates for general aviation in the United States indicate that by 1980 this fleet of aircraft will total 170,000. These are planes operated for pleasure, for commercial purposes, crop dusting, and business flying. The estimates exclude the certified air carriers which have a fleet of only 2,000 or so, not expected to increase greatly due to the replacement of piston aircraft by the larger jets.

All in all, with this many aircraft, along with the thousands of military planes flying today, the flying safety record is phenomenal. Annually, approximately 1,000 people lose their lives in all kinds of non-military flying. Compare this relatively low number with the number killed on our highways in 1966—52,500. Perhaps the old bromide is true—"the most dangerous part of flying is the trip to the airport."

This remarkable safety record for general aviation must be kept as low and reduced still further. Identification of the human as well as the mechanical and pilot error factors involved in fatal accidents will become an important method in preventing future accidents. Proper cockpit design and seat tie-down arrangements will be realized in the manufacture of aircraft when there is a greater acceptance that aircraft structural failure must be correlated with internal and external injuries.

Physicians should be aware of the importance of the human factors investigation of fatal aviation accidents. If called upon by the Federal Aviation Administration, they should assist in the investigation. This is important because human factors have a direct bearing on the future safety of pilots. General Hap Arnold put on his old football helmet *after* he realized the need for protective headgear. Much later, pilots were given hard helmets for head protection. Still later, investigations of injuries in military flying disclosed the need for seat belts, shoulder harnesses, ejection seats, and breathing oxygen as well as anti-G suits, plus all of the other safety developments. A continued safety effort is needed in the direction of general aviation just as in other forms of transportation. Recently the newspapers and periodicals have carried many stories about the safety problem in automotive travel and what is being done about it.

The future of general aviation is a great one—light jets, single and twin engine aircraft with high altitude ability, speedier cross-country trips, safer aircraft and more safety conscious pilots. To make all this possible, however, a strong effort must be made to investigate the human as well as the mechanical factors involved in all aircraft accidents. The results of such studies will work for all of us, pilots and passengers today and tomorrow.

References

1. Lovell, F. W., and Berry, Frank B.: The medical profession in air safety. *Annals of Surgery*, 153:625-638, 1961.
2. Armstrong, J. A.; Fryer, D. I.; Steward, W. K.; and Whittingham, Sir H. E.: Interpretation of injuries in the Comet aircraft disasters: An experimental approach. *Lancet*, 1:1135, 1955.
3. Glanz, W. M., and Stenbridge, V. A.: Coronary artery atherosclerosis as a factor in aircraft accident fatalities. *Journal of Aviation Medicine*, 30:75, 1959.
4. Reals, W. J.; Mohler, S. R.; and Doyle, B. C.: An integrated approach to the aeromedical investigation of civil aircraft accidents. *Aerospace Medicine*, 39:82-84, 1968.
5. Wick, Robert L., M.D.: The AOPA Pilot, 6:46-50, June 1963.
6. Ibid.: 7:34-37, August, 1964.
7. Reals, W. J.; Davidson, W. H.; and Karnitschnig: Pathology of light aircraft accidents. *Aerospace Medicine*, 35:133-135, 1964.
8. Collins, Richard: Flying physicians journey. *Air Facts*, pp. 63-78. November, 1966.
9. Kiel, F. W.: Helicopter rotor-blade injuries. *Aerospace Medicine*, 36:688-70, 1965.

Acute Rheumatic Fever

Report of a Case in a Two-Year-Old Child

CAROL A. SLEEPER, M.D., WILLIAM L. HAYES, M.D., and
RUSSELL A. NELSON, M.D., *Wichita*

THE UNCOMMON OCCURRENCE of acute rheumatic fever in children under the age of three years¹⁻⁴ prompts this report of a case recently seen at Wesley Medical Center.

A two-year-old female was first seen in the emergency room for "a cold, stomach trouble and nose-bleeds." Positive physical findings included grunting respirations, rapid pulse rate and a temperature of 102 F rectally. She was admitted with a tentative diagnosis of pneumonia and possible heart disease.

The patient apparently had been well until two weeks prior to admission when she had an elevated temperature. She was examined elsewhere, and aspirin was prescribed. She apparently improved until the day prior to admission when she became tired and went to bed unusually early. The next morning she was still tired, listless, ate poorly and was nauseated. The parents subsequently noted rapid respirations, cough and fever, and brought her to the hospital that evening.

Past medical history revealed an Rh incompatibility requiring exchange transfusion at birth. She apparently had no difficulty afterward.

Five siblings were reported to be in good health.

Admission physical examination showed a well developed, well nourished, lethargic child who could be aroused. Temperature was 102 F rectally. The respiratory rate was 90-100 per minute. The heart rate was 180 per minute and regular. Examination of the head, eyes, ears, nose and throat revealed mild erythema of the oropharynx and slightly enlarged tonsils. There were scattered ronchi throughout the lung fields. There was questionable hepatomegaly. A short systolic apical murmur was present, which eight hours later had become a grade III regurgitant systolic apical murmur with the addition of a grade II systolic ejection murmur at the pulmonic area. The initial EKG showed a sinus tachycardia as did subsequent electrocardiograms.

The chest x-ray showed cardiomegaly with enlargement of the left atrial appendage and increased pulmonary venous markings.

The admission laboratory tests were: hemoglobin,

10.5 grams; hematocrit, 35 per cent; white blood count, 15,500; differential white count, 69 per cent segmented neutrophils, 2 per cent bands, 22 per cent lymphocytes, and 7 per cent monocytes. The red cell morphology showed hypochromia, anisocytosis and polychromasia. Occasional nucleated red cells were present. Platelets were adequate.

The erythrocyte sedimentation rate (Wintrobe)

The clinical, laboratory and autopsy findings in a two-year-old child with fatal acute rheumatic carditis are presented. Although rare at this age, acute rheumatic fever can present at any age and should not be excluded from the differential diagnosis on the basis of age alone.

was 42 mm per hour. Febrile and cold agglutinins were negative. Nose and throat cultures grew *Staphylococcus aureus*, coagulase positive, and normal flora. Urine cultures reported no growth in two days. Three blood cultures with and without penicillinase showed no growth in 24 hours and were still negative two weeks later. Viral cultures of three stool specimens were negative.

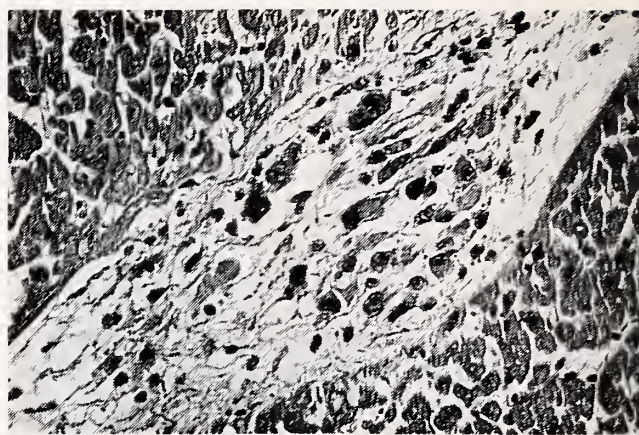
Subsequent blood counts showed a decreased hemoglobin and an increased white blood count with a shift to the left. On the fifth hospital day an ASO titer was positive at a 1:500 dilution.

A clinical diagnosis of a viral or nonspecific myocarditis was made. Bacterial endocarditis and acute rheumatic fever were included in the differential diagnosis.

The patient was given digitoxin at once, beginning on the night of admission. Ampicillin was started the following day since pneumonia was considered a possible diagnosis by x-ray. In view of the negative blood cultures, Prednisone, 10 mg four times a day, was started on the fifth day. Aspirin was given throughout the hospital course.

On the sixth hospital day more severe cardiac decompensation occurred, indicated by the presence of

From the Department of Laboratories, Wesley Medical Center, Wichita, Kansas.



Figures 1 and 2. Sections through myocardium.

a gallop rhythm, increased diffuse pulmonary rales, and definite hepatomegaly. Repeat chest x-ray showed an increase in the cardiac size and extensive bilateral alveolar infiltration compatible with severe pulmonary edema. Mercuhydrin and chlorothiazide were added to the therapeutic regimen, but cardiac arrest occurred and the patient expired.

Autopsy was limited to the heart and lungs. There was 100 ml of straw-colored fluid in the pericardial sac. The heart weight was 125 gm (average heart weight for a child of two years is 56 gm). There were no congenital abnormalities. All four chambers of the heart were dilated. The myocardium was pale pink and flabby. There were no valvular vegetations present. The mitral valve leaflets were slightly discolored pale brown.

The left and right lungs weighed 220 and 270 gm, respectively. (Normal lung weights for a child of two years are 76 gm for the left and 88 gm for the right.) Both were noncrepitant, congested and exuded serosanguineous fluid upon compression.

On microscopic examination of the myocardium there were scattered Aschoff bodies composed of areas of fibrinoid necrosis surrounded by mononu-

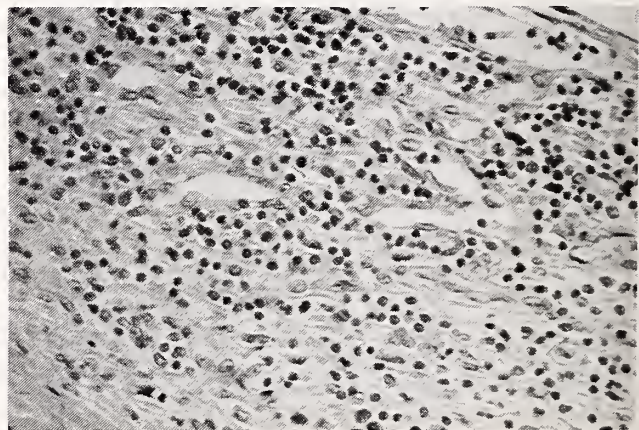
clear leukocytes, fibroblasts, Aschoff giant cells and occasional Anitschkow myocytes (Figures 1 and 2). Sections through the mitral valve revealed minimal increased thickening of the leaflets which contained areas of fibrinoid necrosis and inflammatory cell infiltrate consisting of mononuclear leukocytes, lymphocytes, eosinophiles and fibroblasts (Figures 3 and 4). There was minimal acute inflammatory cell infiltrate of the tricuspid valve and at the base of the aortic valve, as well as slight collagen degeneration of the former. The pulmonic valve was uninvolved. The pericardium was edematous and contained scattered polymorphonuclear leukocytes.

In sections from the lungs there was precipitated eosinophilic proteinaceous material in some alveolar spaces along with frequent macrophages, many of which contained hemosiderin.

Numerous macrophages with erythrophagocytosis were present in the mediastinal lymph nodes.

Discussion

Application of the modified major and minor diagnostic criteria of Jones⁵ in this case indicated one major manifestation, carditis; and three minor mani-



Figures 3 and 4. Sections through mitral valve.

festations: fever, increased erythrocyte sedimentation rate and leukocytosis, and elevated ASO titer indicating a preceding Beta hemolytic streptococcal infection. These findings are compatible with a clinical diagnosis of rheumatic fever at any age.

The reason for reporting this case and the lesson to be learned from it is that, although rare, acute rheumatic fever does occur in children under the age of three and should never be excluded from the differential diagnosis on the basis of age alone.^{2, 6} A recent report places the incidence of acute rheumatic fever in the age group under three at 0.5 per cent of all children in the pediatric age group hospitalized with a first attack.⁷ Ninety per cent of first attacks of rheumatic fever occur between the ages of five and 15.⁸

References

1. Friedberg, C. K.: *Diseases of the Heart*, Vol. II. Philadelphia, W. B. Saunders Co., p. 1321, 1966.
2. Hurst, J. W., and Logue, R. B.: *The Heart, Arteries and Veins*. New York, McGraw-Hill, p. 520, 1960.
3. Nadas, A. S.: *Pediatric Cardiology*. Philadelphia, W. B. Saunders Co., pp. 171-213, 1963.
4. Nelson, W. E.: *Textbook of Pediatrics*, Ed. 8. Philadelphia, W. B. Saunders Co., p. 979, 1964.
5. Committee on Standards and Criteria for Programs of Care of the Council of Rheumatic Fever and Congenital Heart Disease of the American Heart Association: Jones Criteria (Modified) for Guidance in the Diagnosis of Rheumatic Fever. *Circulation* 13:617, 1956.
6. Logue, R. B., and Hurst, J. W.: Rheumatic fever during the first few years of life and its differentiation from endocardial fibrosis. *Amer. J. Med. Sci.* 223:648-656, 1952.
7. Rosenthal, A., Czoniczer, C., and Massell, B. F.: Rheumatic fever under three years of age. *Pediatrics* 41:612-619, 1968.
8. Robbins, S. L.: *Pathology*. Philadelphia, W. B. Saunders Co., p. 527, 1967.

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Disease Prevention and Control—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in March, 1969 and 1968

Diseases	March			January-March Inclusive		
	1969	1968	5-Year Median 1965-1969	1969	1968	5-Year Median 1965-1969
Amebiasis	—	—	—	—	3	1
Aseptic meningitis	1	—	—	2	—	—
Brucellosis	1	—	—	1	—	—
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	1	—	—	2	—	1
Encephalitis, post-infect.	—	—	—	—	1	—
Gonorrhea	387	369	278	1,136	984	902
Hepatitis, infectious	35	21	21	91	70	70
Measles (Rubeola)	—	—	*	—	7	*
Meningococcal meningitis	2	—	—	11	12	6
Mumps	10	248	*	48	508	*
Pertussis	—	—	—	—	—	—
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	2	—	—	2	1	2
Rubella (German Measles)	8	7	*	22	68	*
Salmonellosis	4	14	14	34	47	47
Scarlet fever	6	1	6	21	18	41
Shigellosis	4	7	4	17	11	17
Streptococcal infections	702	392	392	1,208	1,013	1,079
Syphilis	145	104	85	465	267	264
Tinea capitis	5	4	4	11	19	13
Tuberculosis	18	29	23	44	62	54
Tularemia	—	—	—	—	1	1
Typhoid fever	—	—	—	—	—	—

* Statistics unavailable

Short Bowel Syndrome

Part II: Patient Management Following Massive Intestinal Resection

DOUGLAS WILMORE, M.D.,* *Philadelphia*

(Continued from May)

Diet

BECAUSE OF THE ABSORPTIVE defects that exist after extensive bowel resection, a high carbohydrate, high protein, low fat diet should be the final goal in nutritional therapy. Elimination of fibers and residue from the diet decreases the bulk of the foodstuffs administered, prolonging transit time and increasing absorption. Food which stimulates peristaltic activity (such as fresh fruits) should be avoided. Intestinal absorption is most efficient with frequent feedings of equally divided portions of the daily nutritional requirements. In the hospitalized patient, continuous 24-hour administration is possible with the use of an infusion pump, delivering a liquid or blended diet at a constant rate through a gastrostomy or nasogastric tube. However, for long-term therapy, the patient must adapt a new feeding pattern if successful enteral support is to be achieved.

Synthetic Diets and Dietary Supplements

With the institution of oral feedings in the post-operative period, administration of predigested nutrients may prove beneficial. The first feedings may consist of 5 per cent glucose water, administered at a constant rate through a tube by pump or gravity drip. Using isotonic solutions, osmotic stimulation is avoided and the maximal fluid volume that will not produce diarrhea can be determined. Next, a simple synthetic diet composed of glucose and amino acids is administered within the established volume limit. This mixture is composed as a slightly hypertonic solution (300-320 mOSM) to allow dilution in the stomach by gastric secretions. A more complete liquid formula containing all essential nutrients is available in the form of the fortified aerospace diet, but preparation of a similar diet is possible by combination of intravenous nutrient solutions and electrolyte concentrates. Isotonic adjustment of this mixture is necessary to avoid osmotic stimulation, but gradually,

both the volume and osmolality of the solution may be increased to provide additional nutrients. Because of the undesirable taste of chemically-defined water-soluble diets, administration by tube is frequently required. Supplemental high carbohydrate feedings can be provided in addition to the synthetic diet to allow oral stimulation and create patient interest in eating. Gradually, the individual is converted to a total oral diet. Supplemental feedings may be necessary and synthetic or blended high carbohydrate diets can be administered by gastrostomy tube at night or between regular meals to insure optimal efficiency of the gastrointestinal remnant.

Other supplements may be necessary if successful enteral nutrition is to be achieved. Large quantities of oral calcium may be essential to attain positive calcium balance, and this can be provided as calcium gluconate or skim milk. In addition to its nutrient value, the calcium aids precipitation of free fatty acids from the intestinal contents, thus eliminating intestinal stimulation and explosive excoriating diarrhea. Vitamins, iron and magnesium may be given as oral supplements or can be administered by the intramuscular route.

Medium chain triglycerides may supply additional calories, providing no additional osmotic stimulation and decreasing saponification of calcium. These fatty acids with chain length of 8-10 carbons are hydrolyzed and absorbed at a faster rate than long-chain triglycerides, and transported directly into the portal system. Because excess administration of the fat results in diarrhea, a tolerance level should be established for safe and efficient use.

Antiperistaltic Agents

With prolongation of gastrointestinal transit, contact time between nutrients and intestinal mucosa is increased, allowing more effective absorption of foodstuffs from the bowel lumen. Opiates, constipating agents and anticholinergic drugs are useful in increasing absorption in patients with chronic diarrhea and the short bowel syndrome. Codein appears to be the most potent antiperistaltic agent, but its effectiveness may vary from patient to patient. Parenteral

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administration of antiperistaltic drugs insures a therapeutic level in patients with postresection malabsorption. Opiate addiction may occur, but long-term use of the drug is often unnecessary as bowel adaptation takes place.

Parenteral Medications

Vitamin and mineral administration may be necessary for long-term maintenance of these nutrients. While many of the deficiencies can be determined by clinical signs or serum levels, it is often safer to initiate a program of parenteral vitamin and mineral administration before hospital discharge. With time, one or a combination of these micronutrients can be eliminated and laboratory or clinical signs monitored to prevent deficits. Patients with distal resections require parenteral administration of Vitamin B₁₂. In addition, long-term parenteral calcium and magnesium administration may be required to attain adequate positive balance of these ions.

Ancillary Surgical Procedures

Failure of specialized dietary and drug therapy to achieve adequate enteral nutrition prompted laboratory evaluation of other methods to increase the efficiency of small bowel remnants. Small bowel reversal has been proposed as a method of increasing intestinal absorption after massive bowel resection. The short antiperistaltic segment, anastomosed terminally to the remaining small bowel, maintains its functional polarity and acts as an incomplete bowel obstruction. Gastrointestinal transit is delayed and contact between nutrients and intestinal mucosa is increased, allowing more effective absorption of foodstuffs from the bowel lumen. These effects have been quantitat-

ed in the laboratory animal to show increased survival in resected dogs and a quantitative increase in the absorption of water, nitrogen, fat, and carbohydrate with the physiologic hold-up created by the reversed segment.

Encouragement from experimental benefits of small bowel reversal prompted clinical use of this procedure, and over 15 cases using antiperistaltic segments are now reported in the literature. In all patients, improvement has been based on clinical observation. Few reports have included gastrointestinal absorptive studies and only one, limited by one month follow-up, including both pre- and postoperative studies. Careful long-term evaluation of this procedure in one patient with the short bowel syndrome showed early benefit, with gradual relaxation of the segment and return of diarrhea after six months (*Figure 2*). Experience with this patient and evaluation of two patients with massive resection and dilated incompetent reversed segments prompted our investigation of other means of patient support.

Lack of consistent benefit from antiperistaltic segments may be due, in part, to inadequate standardization of segment length. The most effective absorption should occur with a segment long enough to provide delay of intestinal transit but not too long to create a complete obstruction. Recommendation of optimal segment length, often made without benefit of adequate follow-up, has ranged from 7.5-20 cm. The fine line between physiologic delay and intestinal obstruction is often difficult to achieve. Use of reversed segments for other purposes have indicated the segment length of intestine should not exceed 15 cm and should range from 12-15 cm. However, this operation in a debilitated patient still carries un-

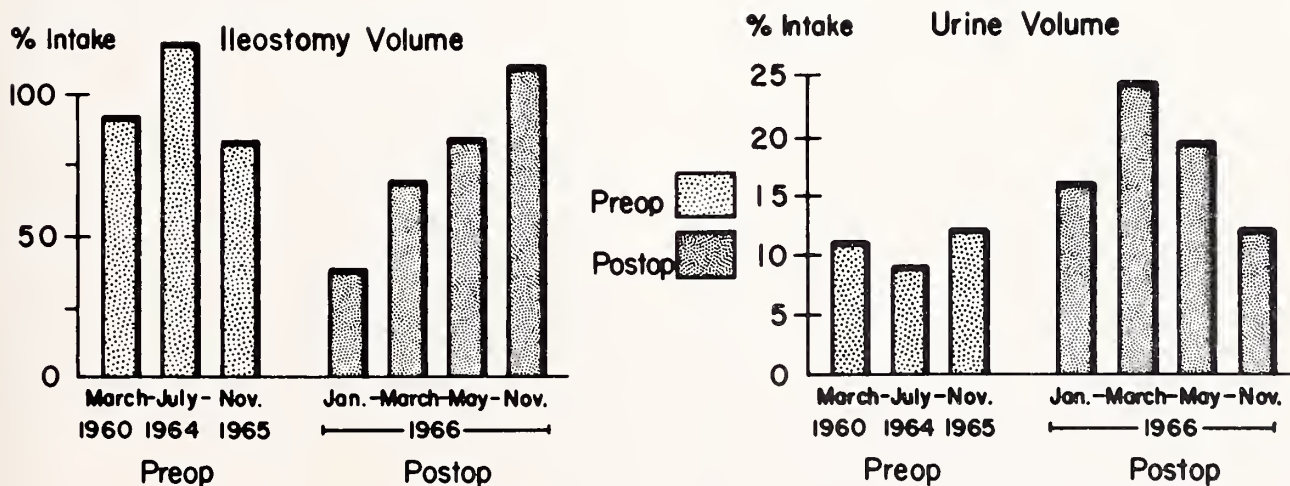


Figure 2. Small bowel reversal in a patient with the short bowel syndrome prevented excessive fluid and electrolyte loss from the ileostomy and improved urine output and renal function. However, gradual relaxation of the segment resulted in return of the ileostomy output to preoperative levels accompanied by a fall in daily urine volume.

predictable results with significant mortality and morbidity. Adequate nutritional evaluation and time for bowel compensation should be allowed before attempting segment reversal.

In addition to antiperistaltic segments, other operative methods have been proposed to prolong intestinal transit. Stahlgren formed a jejunal stenosis by pleating the small bowel to provide a mechanical impediment to intestinal flow and increase absorptive capacity. Redmond and Meckby established recirculating loops which allowed greater contact between nutrients and the bowel mucosa. The results were improved when a reversed segment was incorporated distal to the loop.

Finally, vagotomy and pyloroplasty have been proposed as a method of increasing absorption in the short bowel syndrome. Vagotomy produces its effect by reducing gastric acid production, thus decreasing acidity of the intestinal contents, improving absorption and decreasing transit time. While postresection gastric hypersecretion has been repeatedly documented in the laboratory animal, gastric hypersecretion has not been consistently demonstrated in infants or adults after massive bowel resections. Moreover, the effects of vagotomy have been shown to be of greatest benefit early in the postoperative period, suggesting that gastric adaptation may occur with time. Patients who demonstrate debilitating postresection diarrhea, severe malabsorption and gastric hypersecretion may improve after vagotomy and pyloroplasty. A trial of atropine may help determine the effects of vagotomy on intestinal absorption and transit time.

Intravenous Nutrition

The recent demonstration that normal growth, development, positive nitrogen balance, weight gain and wound healing can be achieved in surgical patients by providing nutrients exclusively by vein, prompted use of this method of nutritional support in patients with the short bowel syndrome. Total intravenous feedings in the postoperative period allows anabolism and tissue synthesis and provides a better nutritional state for the patient to resist infection, heal surgical wounds and withstand further operative and anesthetic stress, if required. Enteral feedings can be evaluated while the patient maintains positive nitrogen balance with intravenous nutrients. When an adequate dietary program has been achieved, the patient can be weaned off the parenteral feedings (*Table 1*). Patients with the short bowel syndrome often demonstrate decompensation during periods of respiratory infections, gastroenteritis, severe trauma or operations. Total parenteral nutrition may be necessary to establish anabolism, aid recovery, and shorten convalescence during subsequent illnesses

TABLE 1
STEPS IN MANAGEMENT FOLLOWING
MASSIVE INTESTINAL RESECTION

1. Immediate survival of the patient
2. Total intravenous nutrition
3. Gastrointestinal feedings
 - a. 5% glucose solution
 - b. elemental diet
 - c. high protein, high carbohydrate, low fat diet
4. Total enteral nutrition

(much like the patient with compensated chronic renal failure who requires hemodialysis during sepsis). Because gastrointestinal transport systems become deficient during malnourished states, repletion of these enzymes with intravenous nutrients allows restoration of intestinal absorption and function.

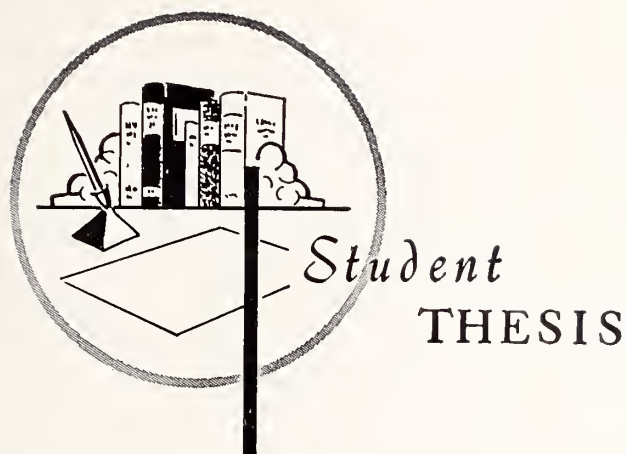
Bowel Transplantation

After extensive or total intestinal resection, some patients may never be able to adapt to total enteral feedings. Survival in these individuals depends on transplantation of the small intestine. With the refinements in tissue typing, improvements in immunologic suppression, development of methods in organ procurement and storage, and improvements in the operative procedure, successful homotransplantation of the small bowel should be a practical method of treatment in the future. However, many problems need to be solved, for preliminary laboratory studies indicate that intestinal homografts may represent more difficulty than homografts of liver and lung. To date, only isolated cases of intestinal transplantation have been attempted in humans, without long-term success.

Another approach to the problem of restoration of intestinal surface area is the isotransplantation of small bowel mucosa to another part of the gastrointestinal tract, such as the stomach or colon. It has been demonstrated that small bowel mucosa can be transplanted and will grow and function in such places as muscle or stomach. Moreover, removing mucosa from portions of colon or stomach and transplanting or "growing" small bowel mucosa onto this base may allow intestinalization and absorption from these adjacent visceral structures.

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Medullary Cystic Disease of the Kidney: A Case Report

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SYMPTOMS AND SIGNS of rapidly progressive renal failure characteristically developing in the third decade of life with few abnormalities of the urinary sediment is the clinical picture characteristic of kidneys with multiple cysts in the renal medulla. The purpose of this paper is to briefly review the literature on medullary cystic disease of the kidney and to present a case report.

Clinical Picture

In 1945, Smith and Graham reported the case of an eight-year-old child with severe refractory anemia who was found to have unexpected azotemia despite minimal urinary changes. Hogness and Burnell reported four cases (ranging from 15 to 49 years of age), characterized by insidious uremia and anemia unaccompanied by the associated common stigmata of progressive renal failure: hypertension, retinopathy, edema, albuminuria and cylindruria. In 1962, Strauss reviewed the clinical and pathological aspects of 18 cases of cystic disease of the renal medulla including those reported by Smith and Hogness. The clinical picture was classically a patient presenting with anemia or signs and symptoms similar to primary Addison's disease. A history of polyuria and nocturia was present in seven

and not known or recorded in ten. Family history of renal disease was absent in sixteen. One identical twin had a brother with azotemia. The second patient had an older asymptomatic brother with a blood urea nitrogen (BUN) of 40 milligrams per cent. The blood pressure was rarely elevated. Urinalysis revealed few abnormalities, usually a trace of albumin and a consistently low fixed specific gravity. Bacteriologic examination of the urine was negative. The BUN was elevated and serum sodium and bicarbonate were low and varied directly with the amount of sodium and bicarbonate intake. The majority (15) of the patients were "salt wasters" with a fixed urine sodium and chloride content. The ability of the kidney to alter hydrogen ion or bicarbonate ion was also limited. Hypocalcemia and hyperphosphatemia were common. Bone disease was commonly found in children. The average age was 27 with 14 patients under 34 years. The ages ranged from 8 to 56.

Kerlin and Russel reported one case of cystic disease of renal medulla in a 41-year-old male, with symptoms of six months duration of polydipsia, polyuria, weight loss and weakness with anemia. Urinalysis revealed a trace of albumin and the specific gravity varied between 1.006 and 1.010. The BUN was 155 milligrams per cent, creatinine was 11.6 milligrams per cent and hemoglobin was 7.75 grams per cent.

Recently Goldman *et al.* reported a study of 60 members of a family through five generations. Fourteen died of renal disease, although this diagnosis

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Rinehart is serving his internship at St. Francis Hospital, Wichita.

was not definite in four. The most common presenting sign was anemia. Deterioration was rapid with symptoms of nausea, vomiting, muscular weakness, cramps, and nocturia occurring late. Renal salt wasting was frequently present with few abnormalities of urinary sediment. Peripheral edema was uncommon and hypertension, if present, was seen terminally. There was progressive azotemia with death at mean age of 25 years (range 18-32 years).

Goldman defined the distinctive features of this disease as: (1) symptoms and signs of rapidly progressive renal failure characteristically developing in the third decade of life; (2) few abnormalities of the urinary sediment; (3) IVP shows small, poorly functioning kidneys with no calcifications; and (4) histologic examination of the kidney reveals features of chronic pyelonephritis in the cortex with cysts and increased amounts of interstitial tissue of the medulla. There were no associated cystic lesions in other organs.

Fifteen of the 18 cases reported by Strauss were salt losers. "Salt losing nephritis," a term first used by Thorn, is a syndrome defined by Levere as: (1) dehydration on normal salt intake; (2) relieved by intake of 10-20 grams sodium chloride per day; (3) not relieved by desoxycorticosterone; (4) steroids are normal in urine; and (5) renal disease that persists on a high salt diet. The etiology of this syndrome has commonly been attributed to chronic pyelonephritis. One case with polycystic disease, presumably of the hereditary type, and five cases with multiple cysts in the renal medulla have been reported. Strauss has discussed these five cases and has examined the microscopic slides from two of the cases. His conclusions were that the clinical manifestations in these five cases left little doubt that these patients had medullary cystic disease. He regarded the frequency of cystic change in salt losing nephritis and the high incidence of severe salt wasting in medullary cystic disease to suggest more than mere coincidence.

Pathology

Grossly, the kidneys are small and approximately equal in weight. The weights of the kidneys were available in sixteen of the 18 cases reviewed by Strauss. The kidneys of one 15-year-old male weighed 43 grams and 45 grams, and of a 21-year-old man, 140 grams each. In the 14 remaining, the maximal weight difference of the two kidneys in each case was no more than ten grams. The average weights of the kidneys were 83 and 87 grams.

On cut surface, there are numerous cysts in the renal medulla and a few cysts may or may not be present in the cortex. The cysts vary in size from 1 millimeter to greater than 1 centimeter. The cortex

is thin and poorly demarcated. Many glomeruli are partially or completely hyalinized with the remaining showing occasional hypertrophy and some periglomerular fibrosis. The basement membrane is not thickened and there is no increased cellularity or crescent formation. The vessels appear to be normal. Many tubules are atrophied and others show hypertrophy. The medulla reveal many cysts lined by a single layer of cuboidal epithelium. Adjacent tubules appear normal, although they are separated by a vast amount of dense fibrous interstitial tissue with focal infiltrates of lymphocytes and plasma cells. There may be focal areas with hamartomatous tissue of mesenchymal origin.

Parathyroid hyperplasia is common. If the patient had severe salt wasting, adrenal hyperplasia may be evident. Depending on the age of the patient, "renal rickets" may be present. There are no associated cystic lesions in any other organs and no associated abnormality of the lower urinary tract has been noted.

Pathogenesis

The pathogenesis of the cystic kidney has been largely speculative and primarily the province of the "arm chair" pathologist. A good historical survey dealing with the possible origins of polycystic kidneys is reviewed by Osathanondh and Potter. In the past, the two most popular theories have been Hilderbrand's (1894) and Kampmeier's (1923). Hilderbrand suggested that metanephric parts derived from the collecting tubules. Kampmeier observed in his dissection of fetal kidneys "that every human individual during his fetal life normally passes through a period characterized by the presence of numerous cystic renal tubules." He postulated cystic disease to be the result of retention of the numerous cystic renal tubules that normally disappear by degenerative or progressive compression through growth and crowding by the normal structures. There has not been any further work to support Kampmeier's observations.

Osathanondh and Potter, by microdissection of 70 normal kidneys ranging from an 11 millimeter embryo to a 70-year-old male and 30 cases in which the kidneys were cystic, were able to delineate four basic types of abnormalities of cystic kidneys. Type I is seen only in infants and it is incompatible with prolonged survival. Cystic bile ducts within the liver are invariably present and the process may affect siblings. This uncommon type results from hyperplasia of the interstitial portions of the collecting tubules. The kidneys are always enlarged. Type II may affect all or only part of one or both kidneys. There is inhibition of ampullary activity. Thus the collecting tubules branch only a few times and all terminate in cysts. The nephrons are greatly reduced

in number and they are usually hypoplastic. The tubules are short and abnormal. Relative to the degree of renal involvement this may be called multicystic kidney, or the kidney may contain a multilocular cyst. The liver is usually normal and there is no evidence of inheritance. The usual bilateral polycystic kidneys of adults are type III. They result from multiple abnormalities of development. Collecting tubules may show either a reduction or increase in the number of branches and may be of normal caliber or may be the site of circumscribed or diffused enlargement or cyst formation. Nephrons may be diffusely enlarged or may have circumscribed cysts in any part of the convoluted tubules or loop of Henle or Bowman's space. Type IV is uncommon and appears to be due to urethral or ureteral obstruction occurring in early fetal life and causing increased intratubular pressure. The degree of abnormality is related to time in development when the obstruction occurs and to the extent of the urethral closure. The cysts are small and they are located mainly beneath the renal capsule.

One of the most significant aspects of Osathanondh and Potter's work was demonstrating that cystic kidneys do not develop as a result of (1) failure of branches of the ureteral bud to unite with tubules arising from the metanephric blastema; (2) cystic enlargement of persisting vestigial generations of nephrons; (3) cystic dilatation of nephrons that detach and fail to reattach; (4) failure of canalization of tubules; or (5) neoplastic adenomatous proliferation.

Herdman, *et al.* suggest that the presence of cysts in medullary cystic disease and most likely in other cystic diseases results from a renal metabolic defect of a particular class and not a primary anatomic aberration. Mongeau and Worthen propose a similar etiology. They speculate that a nephrotoxic substance accumulates because of a metabolic error, and that in some patients this disease is analogous to a number of inborn errors of metabolism in which a hereditary enzymic defect allows a substance to accumulate which causes damage to a tissue or organ.

Most authors regard the etiology of medullary cystic disease to be congenital, not hereditary. In Strauss' review of 18 cases, positive family history for renal disease was absent in sixteen. This would suggest that heredity is not a significant factor. However, Goldman's excellent study gives strong support that the disease may have an inheritance pattern of a Mendelian dominant.

Case Report

D. S., a 14-year-old male, was hospitalized in a Maryland hospital in August 1964. Over a period

of several weeks, he had developed malaise, increasing extremity weakness, fever and diarrhea. The patient had been well prior to the onset of his symptoms, although he always had been quite small for his age. There was no familial history of renal disease, although one brother in the army was found to have hematuria. On admission, the patient was severely ill with uremia, acidosis and severe dehydration. Following therapy with intravenous salt-free fluids, the patient developed dilutional hyponatremia and he had several convulsions. He was noted to be severely hypocalcemic and hyperphosphatemic. At this time the patient was transferred to Johns Hopkins Hospital for care.

Metabolic studies revealed a severe salt wasting renal disease associated with increased aldosterone secretory rates. In spite of a rather fixed urinary sodium (93-103 meq/l), the patient's urinary output of sodium fell to 30 meq/l on the last day of a three-day diet restriction of 35 meq/l of sodium per day. X-ray studies showed considerable disparity in renal size. The cine cystourethrogram was normal. There was radiological evidence of renal osteodystrophy with osteomalacia and osteitis fibrosa. The patient did not have hypertension.

Following discharge from the hospital, the patient did well on four grams sodium chloride, eight grams sodium bicarbonate, 60 grams protein, and 50,000 units vitamin D per day. His blood urea nitrogen was 80 milligrams per cent. He had no acidosis, but he did have an anemia that occasionally required transfusion.

In June 1965, the patient and his family moved to Kansas City and he was followed as an outpatient at the University of Kansas Medical Center (KUMC). The patient was doing well in August 1965, and his blood pressure was 120/110. He was admitted to KUMC in January 1966, in acute pulmonary edema with a history of productive cough for ten days prior to admission. At the time of admission, his blood pressure was 170/110; white blood count, 16,950; hemoglobin, 3.5 grams per cent; sodium, 140; potassium, 7.7 meq/l; chlorine, 95 meq/l; carbon dioxide, 20 meq/l; calcium, 3.7 meq/l; PO_4 , 5.3 meq/l; and blood urea nitrogen, 150 milligrams per cent. Urinalysis showed specific gravity 1.007. Protein ranged from a trace to 3+, and the sediment was not remarkable. Two urine cultures were negative. After two units of packed cells, his hemoglobin was 8.0 grams per cent and his blood urea nitrogen was 288 milligrams per cent. He was discharged from the hospital. He was doing well in late February, with a blood pressure of 120/86. He was again admitted to the hospital on March 17, and at that time his hemoglobin was 4 grams per cent and blood urea nitrogen, 300 milligrams per cent;

urinalysis was unchanged. He received two units of packed cells and was dismissed from the hospital.

The third admission was in April for aphthous stomatitis secondary to uremia. The blood urea nitrogen was 330 milligrams per cent and the creatinine was 27.5 milligrams per cent. Peritoneal dialysis lowered the blood urea nitrogen to 125 milligrams per cent and the creatinine to 12 milligrams per cent. Urinalysis remained unchanged. Eight to ten days following dialysis the patient was admitted to the hospital for "jerking spells" of 36 hours duration. It was thought that he had experienced a reverse uremic syndrome due to a rapid change in his blood chemistry. He was started on Dilantin.

In May, the patient was again hospitalized to receive two units of packed cells for his anemia. His hemoglobin was 6.0 grams per cent; hematocrit, 17 per cent; blood urea nitrogen, 57 milligrams per cent and creatinine, 15 milligrams per cent. The patient had a grand mal seizure on June 13, 1966, and was admitted to the hospital. During this hospital stay it was arranged to have him put on chronic dialysis at Kansas City General Hospital, with the goal of subsequent renal transplantation. The patient expired on July 1, 1966, a few hours after being transferred to General Hospital and before dialysis could be started.

Portmortem

At autopsy, both kidneys appeared as irregular small balls on the ends of the ureters (*Figures 1 and 2*). The right kidney weighed 40 grams and the left weighed 90 grams. The capsules were very adherent. On cut surface, both kidneys revealed cysts ranging in size from a few millimeters to a few centimeters. Five millimeters of cortical tissue was present in the right kidney. The left kidney consisted mainly of cysts with a small amount of cortex in the lower pole. The cysts were largely medullary in location, particularly in the right kidney. The pelves, ureters and bladder appeared normal.

On microscopic examination, the glomeruli were greatly decreased in number. There were varying stages of hyalinization in several glomeruli. A few showed changes of reactive glomerulitis with pseudogland formation within Bowman's capsule. Many of the glomeruli appeared normal. A few tubules appeared hypertrophied while others appeared atrophied. There was an increased amount of interstitial tissue with small foci of mononuclear cells. There were areas of embryonal tissue. A few small cysts were seen in the cortex, but most of the cysts were in the renal medulla. They were lined with a cuboidal epithelium. In some cysts, the lining epithelium was tall columnar cells. Both grossly and

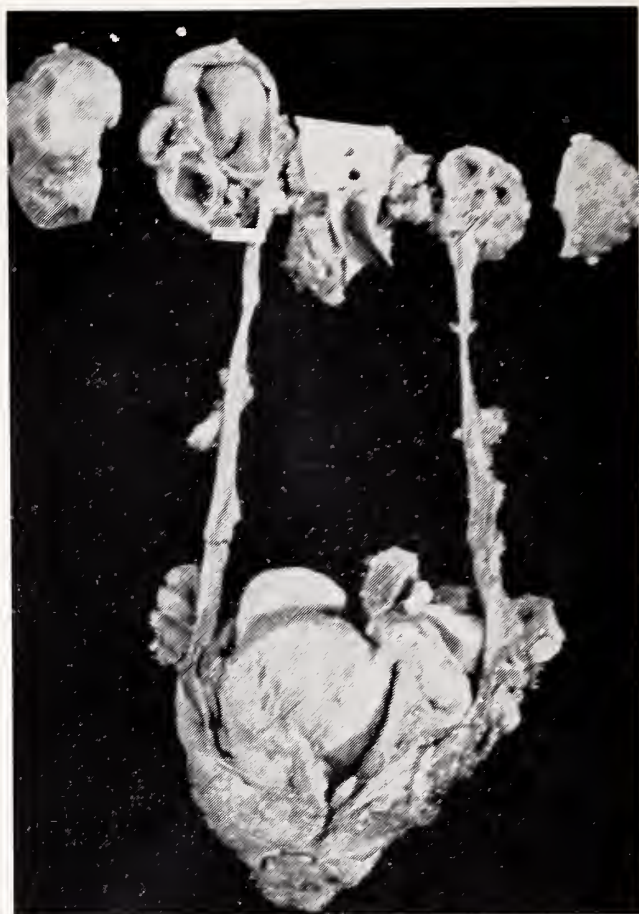


Figure 1. Gross specimen of the kidneys, ureters, and bladder.

microscopically the cortical medullary junction was indistinct.

The spleen weighed 110 grams (*Figure 3*). On cut surface, the spleen showed many small, round, white foci throughout the parenchyma. On microscopic examination, there were numerous hyperplastic follicles of lymphocytes containing large cells

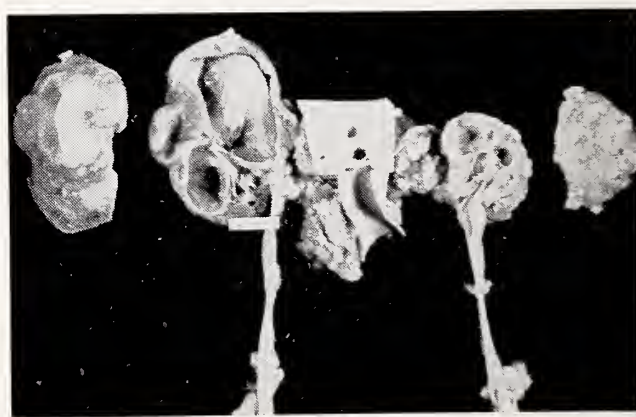


Figure 2. Left kidney (left side of photograph) weighed 90 grams. Note the small amount of cortex present in the lower pole. Right kidney weighed 40 grams. Note the location of the cysts.

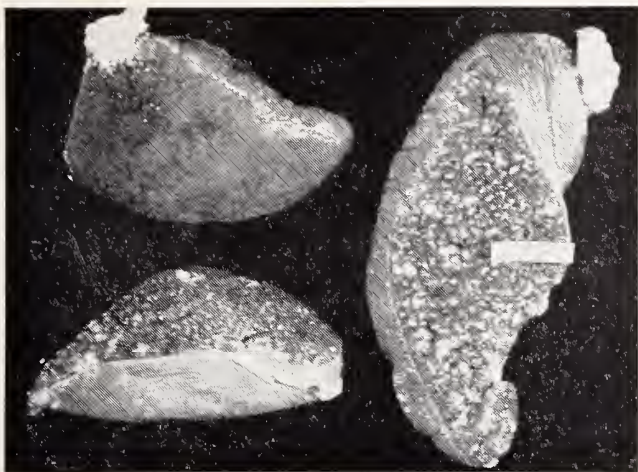


Figure 3. Spleen weighed 110 grams; note the small round white foci throughout the parenchyma.

resembling Reed-Sternberg cells. Phagocytized red cells and eosinophils were seen. The parathyroid glands showed hyperplasia with a predominance of water clear cells. The bone showed numerous osteoclasts and numerous areas of erosion in the trabeculae. Deposition of new osteoid material was prominent. The adrenals were normal.

Discussion

In reviewing the literature on cysts of the kidney, one is immediately impressed with confusion when comparing the various classifications. Strauss makes a distinction between two types of clinical entities that present with multiple cysts in the renal medulla. Distinct from medullary cystic disease, Strauss among others refer to the sponge kidney. Pathologically, the sponge kidney consists of multiple small cystic cavities confined strictly to the pyramids of one or both kidneys which impart a porous or sponge appearance to the kidneys. The sponge kidney is classically asymptomatic unless complicated by calculi or infection. It is compatible with normal longevity. The renal function is usually good although the concentrating capacity may be slightly impaired. The disease is usually bilateral but it may affect one or part of one kidney. Diagnosis is made by IVP with the pyramids appearing as a "bunch of flowers or grapes" at the periphery of the calyces. Diagnosis is usually made in the fourth, fifth and sixth decades but diagnosis has been made from the first to the seventh decade.

In polycystic disease of the kidneys, the wide degree of variation in the presenting clinical picture, age of diagnosis, and pathological changes in the kidney is familiar to pathologists. In considering cystic disease of the renal medulla, I would suggest that the analogy of variation apparent in polycystic disease may be relevant to medullary cysts of the renal

medulla. It is not unreasonable that medullary cystic disease and the sponge kidney are the result of the same pathogenesis. I would suggest that the pathogenesis of medullary cysts may best be explained by Osathanondh and Potter's type II cystic kidney. The collecting tubules branch only a few times and all terminate in cysts. The nephrons are greatly reduced in number and they are usually hypoplastic. The tubules are short and abnormal.

Familial juvenile nephronophthisis, first reported by Fanconi *et al.* in 1951, presents a clinical picture indistinguishable from medullary cystic disease. Nephronophthisis has been considered a disorder of young children inherited in autosomal recessive manner, and characterized by anemia and by renal insufficiency and manifest pathologically by an interstitial nephritis. Medullary cystic disease is typically reported in older children and adults, occurring sporadically or inherited in a dominant fashion and characterized by renal insufficiency and salt wasting due to renal cysts. Recently, Mongeau and Worthen reported eight cases. The youngest patient and the oldest patient were five years and 41 years respectively. They found features in every case which could be considered diagnostic of either medullary cystic disease or nephronophthisis. In an attempt to establish criterion to define each syndrome, Mongeau found the similarities so fundamental and the differences so minor that he was unable to make a distinction between medullary cystic disease and nephronophthisis. Mongeau considers the higher familial incidence of nephronophthisis (83 per cent, compared to 47 per cent for medullary cystic disease), and the higher frequency of macroscopic cysts in medullary cystic disease (85 per cent, compared to 40 per cent for nephronophthisis) are the natural consequences of the original definition of each disorder. Herdman *et al.* recently reported two siblings with medullary cystic disease. They were impressed by the many similarities between medullary cystic disease and juvenile familial nephronophthisis. Herdman *et al.* were unable to detect any pathologic differences microscopically on comparing histologic material from one patient with nephronophthisis with material from patients with medullary cystic disease. With the present evidence available, I would agree with Mongeau and Worthen in considering nephronophthisis and medullary cystic disease as the same disorder. In order to make finer distinctions that will be of practical value to the clinician and pathologist, it will be necessary to define clearly the etiological factors in this disease or diseases.

In the case report presented, the clinical picture

(Continued on page 290)

Clinical Cardiology

Management of Pulmonary Insufficiency

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PULMONARY INSUFFICIENCY occurs acutely or chronically under conditions which generally include in whole or in part signs of breathlessness, obstruction of airways and retention of secretions. Institution of proper therapy calls for a prompt integration of the history, physical examination and laboratory tests.

The features of most historic significance are concerned with sputum and wheezing. For example, it is difficult to make a diagnosis of chronic bronchitis without eliciting a history of sputum production on arising in the morning. A yellowish or greenish color to sputum often signifies acute bronchopulmonary infection. Sudden cessation or marked reduction of sputum volume in a patient chronically bringing up sputum may indicate retained secretions or mucoid impaction. Gradual reduction of sputum volume over months or years accompanied by dyspnea may signal the development of pulmonary emphysema. Wheezing is associated with bronchial asthma or bronchitis; it also occurs in severe congestive heart failure. Swelling of the ankles may be the result of cor pulmonale or mechanical obstruction of the inferior vena cava by depressed diaphragms. Smoking habits, occupation background and exposure to noxious gases, fumes, or dusts are helpful in establishing an etiologic diagnosis.

The decision to employ a specific means of mechanical aid to ventilation is most dependent upon the sensorium of the patient. Conservative measures are preferred when the patient is mentally alert regardless of the disturbances in arterial blood gases. The breathing pattern is important in establishing whether reassurance, intermittent positive pressure breathing with bronchodilators or intubation are indicated. Short gasping inspirations in patients with obstructive airway disease may be caused by an anxiety reaction or acute bronchopulmonary infection. Prolongation of expiration occurs in bronchospasm and in emphysema. Occasionally, the sole sign of airway obstruction is vigorous contraction of the abdominal rectus muscles during expiration.

Auscultation of the chest for wheezes, rales and audibility of breath sounds is helpful in the differential diagnosis of bronchospasm, congestion, fibrosis, pneumonitis and pneumothorax. A tracheal wheeze may result from the tracheobronchial collapse due to emphysema or to upper airway obstruction.

Analysis of the arterial blood gases is a mandatory part of the clinical examination in every patient with pulmonary insufficiency (for detailed description of arterial blood gas interpretations see Sackner, *Medical Times* 95:79, 1967). Important measurements obtained from the arterial blood analysis include pH, carbon dioxide tension ($p\text{CO}_2$), base excess, oxygen tension ($p\text{O}_2$) and oxygen saturation. The blood pH is normally fixed between 7.38 and 7.42. It is affected by a change in $p\text{CO}_2$ and an accumulation of non-volatile acids or bases. Arterial $p\text{CO}_2$ ranges from 38-42 mm Hg and is inversely proportional to alveolar ventilation. Base excess is normally zero; a positive value indicates a base excess or a non-volatile acid deficit, a negative value indicates a base deficit or a non-volatile acid excess. The base excess can theoretically be determined by titration with a strong acid to a pH of 7.40 at a $p\text{CO}_2$ of 40 mm Hg and a temperature of 38° centigrade. In practice, base excess is determined indirectly by calculation from a nomogram using values for pH, $p\text{CO}_2$ and hemoglobin concentration. The base excess should be considered as the indicator of metabolic and the $p\text{CO}_2$ that of respiratory disturbances. A blood pH below 7.38 indicates acidosis. If the $p\text{CO}_2$ is greater than 42 mm Hg a respiratory acidosis exists whereas if the base excess is less than -3 (i.e. -4, -5, -6 etc.) a metabolic acidosis is present. A positive base excess (+3 or greater) associated with a respiratory acidosis generally indicates that in whole or part the respiratory acidosis has been chronic.

The usual arterial blood gas disorders in pulmonary insufficiency involve hypoxemia and respiratory alkalosis or acidosis. Respiratory alkalosis and hypoxemia are often found in the early stages of status asthmaticus and in atelectasis. Many patients with obstructive airway disease have hypoxemia only. Chronic respiratory acidosis is usually seen in patients with chronic bronchitis alone or as the pre-

* Chief, Division of Pulmonary Disease, Mt. Sinai Hospital, Miami Beach, Florida.

This article was prepared for the JOURNAL by the Kansas Heart Association.

dominant disease in combined bronchitis and emphysema. Acute respiratory acidosis may occur in patients with pre-existing pulmonary diseases who have superimposed infections, retained secretions, narcotic dosage or overdosage, congestive heart failure, status asthmaticus or pneumothorax. Metabolic acidosis may complicate acute respiratory acidosis in conditions such as status asthmaticus and pulmonary edema.

A chest roentgenogram should always be obtained in patients with pulmonary emphysema who develop acute pulmonary insufficiency. In these patients, pneumothorax and pneumonitis may give few or no physical signs. An electrocardiogram should be obtained routinely since cardiac arrhythmias are frequent. A gram stain of the sputum smear should be examined immediately to help in the choice of an antibiotic.

In terms of management, we have found the following classification of pulmonary insufficiency useful. It is based on (1) the state of the sensorium, (2) obstructive airway signs, (3) signs of retained secretions and (4) acid-base balance as estimated by arterial blood gas analysis.

Alert; Obstructive Airway Signs; No CO₂ Retention. This is probably the commonest type of pulmonary insufficiency. It is found in status asthmaticus and in anxiety reactions in patients with pre-existing pulmonary diseases. Hypoxemia and respiratory alkalosis are generally present. Psychotherapy is by far the most important mode of treatment. The physician must repeatedly assure the patient that breathlessness will decrease if respirations are slowed and if he relaxes. The physician must remain in the patient's presence and give vocal encouragement until this is accomplished. In addition, but not as a substitute, intermittent positive pressure breathing using slow respiratory flow rates and nebulizing four to eight drops of racemic epinephrine in 5 ml IV aminophyllin solution for 15 minutes every three hours may be useful. If psychotherapy is ineffective, sedation must be employed using mild tranquilizers to narcotics as indicated. Intravenous steroid and aminophyllin therapy are often beneficial. If there is coexisting metabolic acidosis as in status asthmaticus, initially one ampule of NaHCO₃ (44.5 meq) should be given for every -4 to -5 meq of base excess and further requirements followed by serial arterial blood gas determinations.

Alert; Obstructive Airways Signs; Acute Respiratory Acidosis. This condition develops in certain patients with status asthmaticus, in patients with emphysema or chronic bronchitis who develop a bronchopulmonary infection or anxiety reaction. These patients frequently show rapid shallow res-

pirations and hold their chests in a high inspiratory position. Reassurance should be employed but is not as effective as in those patients without CO₂ retention. These patients should be treated with intermittent positive pressure breathing until arterial pCO₂ returns to normal. If bronchospasm exists, intravenous steroids and aminophyllin should be employed. Narcotics and sedation are usually contraindicated because of their depressant effects on the respiratory center. However, if the tachypnea persists and if intermittent positive pressure breathing is fought by the patient, then a trial of sedation may be indicated. This type of treatment should only be utilized if the patient is in an intensive care unit under close medical surveillance and if intubation equipment is immediately available with close monitoring of arterial blood gases. Base deficits should be corrected with intravenous sodium bicarbonate.

Alert; Retained Secretions; No CO₂ Retention. Representative examples in this category include pneumonitis, postoperative atelectasis and acute exacerbations of chronic bronchitis or bronchiectasis. The best results in terms of removal of secretions are obtained with chest physiotherapy. A trained chest physiotherapist performs shaking and clapping of the chest and postural drainage, and educates the patient in correct coughing. Nasotracheal suction should always be done initially by an experienced attending physician before turning this task over to nursing since it is often difficult to carry out properly. Deep breathing exercises and intermittent positive pressure breathing should be used in atelectasis. Heated aerosol is indicated for loosening secretions in large airways, the ultrasonic nebulizer for small airways. Antibiotics should be administered if the sputum is purulent. Provided the patient remains alert, bronchoscopy is usually not required.

Alert; Obstructive Airway Signs; Chronic Respiratory Acidosis. Patients with chronic bronchitis or emphysema may show this condition. The blood pH is near normal, pCO₂ and base excess elevated and hypoxemia is present. If arterial pCO₂ is less than 62 mm Hg with near normal pH, these patients should be maintained on intermittent positive pressure breathing four times a day, or as necessary, at home or in the hospital. Arterial pCO₂ above 62 mm Hg represents an unstable condition; the patient may become acutely acidotic with minimal stresses. These patients should be hospitalized and given hourly or two hourly treatments with intermittent positive pressure breathing until pCO₂ falls below 62 mm Hg. Measures must be taken to keep pH normal by correcting the coexisting compensating metabolic alkalosis with saline, ammonium chloride,

potassium chloride, arginine hydrochloride or diamox as dictated by cardiac, renal and electrolyte considerations. The goal in therapy is to keep $p\text{CO}_2$ below 62 mm Hg while keeping blood pH normal during room air breathing; it is not to bring $p\text{CO}_2$ down to a normal value of 40 mm Hg. It is important to ventilate these patients with oxygen concentrations not greater than 30 per cent because respiratory center depression may occur immediately after a treatment with the respirator if higher oxygen concentrations are used. As in other patients with obstructive airway signs intravenous steroids and aminophyllin, chest physiotherapy and nasotracheal suction are useful adjuncts. This group of patients also frequently has incipient grades of congestive heart failure. Digitalis and diuretic therapy added to regimen occasionally bring $p\text{CO}_2$ to normal and partially relieve the hypoxemia.

Stupor; Acute Respiratory Acidosis. This condition is most likely to occur in patients with obstructive airway disease who have been given sedation, or develop an acute bronchopulmonary infection or have incomplete elimination of anesthetics or neuromuscular agents following surgery. These patients should be treated with continuous intermittent positive pressure breathing until $p\text{CO}_2$ returns to normal. A volume-limited respirator with a mask is preferred since leaks can be overcome by increasing the volume delivered by the machine, whereas pressure-limited respirators do not cycle well if inflation pressures greater than 25 cm water need to be employed. If the latter occurs and a volume-limited respirator is unavailable, then intubation with a cuffed endotracheal tube should be carried out. Bedside bronchoscopy is useful. Tracheostomy should be considered if there are copious secretions and if the patient cannot be taken off the endotracheal tube after 96 hours. Since gastric ileus occurs in many of these cases, the gastric contents should be emptied by a nasogastric tube.

Stupor; Obstructive Airway Signs; Acute and Chronic Respiratory Acidosis. These patients are best treated by continuous controlled ventilation by a mask using a volume-limited respirator. This can also be handled with a pressure limited respirator but one must be prepared to do more frequent monitoring of arterial blood gases and ventilation. However, intubation is usually necessary when the latter type of respirator is employed. The goal of therapy is to reach a normal pH over a 6 to 24 hour period, not a normal $p\text{CO}_2$. Rapid correction of arterial $p\text{CO}_2$ to normal levels with alkaline pH in these patients is associated with a fatal encephalopathy. Adjunctive therapy includes chloride replacement or bicarbonate diuresis, antibiotics, nasogastric suction

and diuretics. If secretions are thick and copious and a tracheostomy employed, lung lavage should be done every four hours with a 5 ml solution of equal parts of intravenous NaHCO_3 solution and saline.

Coma; Respiratory Acidosis. These patients should be bronchoscoped at the bedside, secretions removed and a cuffed endotracheal tube inserted. They should be placed on continuous controlled ventilation with a volume limited respirator. The goal of therapy is restoration of normal pH. Depending upon the base excess, replacement of chloride or bicarbonate should be carried out. Nasogastric suction, antibiotics, diuretics and tracheostomy are useful adjunctive measures.

Student Thesis

(Continued from page 287)

is characteristic of medullary cystic disease. It is important to note that these patients can be helped considerably by providing adequate salt in their diet. This patient lived two years following diagnosis, despite progressive renal disease.

On postmortem, the disparity in weight between the kidneys is atypical. This is contributed largely to the presence of more dilated fluid-filled cysts on the left kidney than on the right kidney. With laboratory evidence of hypocalcemia and hyperphosphatemia plus radiological evidence of renal osteodystrophy, the changes reported in the parathyroids and bone are compatible with the clinical picture. Changes reported in the spleen are suggestive of a lymphoma. Such changes are seen in lymph nodes of patients on anticonvulsant therapy. This patient had been on Dilantin for three months and I think this explains the changes present in the spleen. The lymph nodes examined appeared normal.

Summary

A brief review of the literature and a case report of medullary cystic disease is given. A suggestion that medullary cystic disease and sponge kidney may be the result of the same pathogenesis, but represent different variations in development is made. With the present evidence available, it appears justifiable to consider familial juvenile nephronophthisis and medullary cystic disease as the same disorder. The case reported is atypical in the wide disparity in weight between the kidneys and changes present in the spleen suggestive of a lymphoma.

I wish to thank the Pathology Department, Kansas City General Hospital for the generous use of their materials, and Dr. Frank Mantz for his instructive criticism.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.



Drug Distribution . . . . .	291

IN A PREVIOUS NEWSLETTER we discussed the evidence that drugs are distributed throughout the body compartments primarily depending upon pKa and lipid solubility. The major compartments are shown in *Table 1*. If we administer a 1,000 mg dose to a 70 kg man (14.3 mg/kg), we could determine the concentration in each compartment (if we ignored excretion and destruction) since the total drug in the body is equal to the sum of the products of the volume of water in each compartment multiplied by the concentration of drug in the water of that compartment.

TABLE 1 WATER DISTRIBUTION IN HUMANS		
Compartment	% Total	Liters in 70 kg Man
Plasma water	4.5	3
Extracellular water	18.5	13
Total extracellular water	23	16
Intracellular water	31	22
Total body water	54	38
Adipose tissue fat	15	10.5

Assuming that the drug is not soluble in adipose tissue:

Plasma Concentration

1. If the drug remains entirely in the plasma $\left(\frac{1,000}{3}\right)$ 333 mg/1
2. If the drug distributes evenly in total extracellular compartment $\left(\frac{1,000}{16}\right)$ 62.5 mg/1

3. If the drug distributes evenly in the total body water $\left(\frac{1,000}{38}\right)$ 26.2 mg/1
4. If the drug is two times more concentrated in cell water than extracellular water $\left(\frac{1,000}{2 \times 22 + 16}\right)$ 16.7 mg/1

These types of calculations make empiric clinical data more understandable and prevent poor therapy. It has been determined in an excellent study of the use of lidocaine in ventricular arrhythmias (*New England Journal of Medicine*, 277:1215, 1968) that a plasma lidocaine level of 2-5 µg/ml is required for a therapeutic effect and that if the level rises much above 6-9 µg/ml, that serious toxicity (convulsions, hypotension, CNS, depression) occurs. An intravenous infusion of lidocaine 20-50 µg/kg per minute (1.4-3.5 mg/min. for a 70 kg man) will achieve the desired blood level and effect in 30-60 minutes, the time required to accumulate a sufficient level of drug in the plasma since the half-life of lidocaine is quite short. However, if a priming dose is given as an initial bolus of 1-2 mg/kg (50-100), the therapeutic effect is almost immediate.

Let us now look at what has happened to the concentration of lidocaine when administered as a bolus. From *Table 1* it can be seen that the 100 mg dose would eventually be distributed in the total body water to yield a concentration of $\left(\frac{100 \text{ mg}}{38\text{L}}\right)$ or 2.6 µg/ml. This level is barely a therapeutic concentration and would actually be much lower due to the rapid rate of metabolism of lidocaine. How then is this dose effective? Suppose we inject the 100 mg bolus in one second. The blood which returns to the

(Continued on page 294)

The President's Message

110th Annual Session

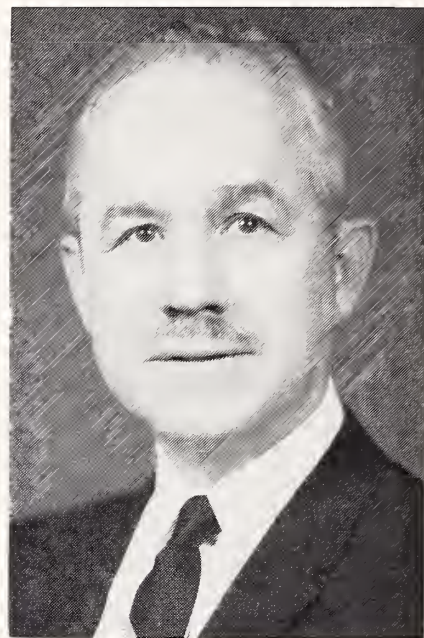
The polished performance of John Morgan for the past year was climaxed by his outstanding address at the first meeting of the House of Delegates. His remarks are printed in full in this JOURNAL and I urge you all to read them. I only hope that the Society is in as fine shape when I hand the gavel to Francis Collins.

RESOLUTIONS: Forty-nine resolutions were presented to the House of Delegates. All were carefully considered by the Reference Committees and freely discussed by the delegates. Thirty-five were adopted, some with modifications; six were not adopted; four were tabled; and four were referred back to the Commissions.

Of the tabled resolutions, two were concerned with Blue Shield relations and two with tempered lenses. These will certainly be re-explored next year.

The four resolutions returned to the Commissions were important ones and will undoubtedly be re-submitted in a more acceptable form to our next House of Delegates. Resolution No. 8, the medical control of mental health centers, is a complex problem and the House thought further study was indicated. The membership-at-large resolution (No. 25) apparently presented a threat to some of our important societies. The delegates felt that the 400-some M.D.'s, not members of this Society, should be encouraged to belong. The committees will restudy and hopefully find a better approach.

The osteopathic resolution (No. 48) was ably presented by Mike Deitz of Wyandotte County. Since it had not been published in the JOURNAL, however, the delegates thought further study and more widespread information to the membership was again indicated. This resolution will no doubt return in some form or another until resolved.



Resolution No. 41 concerned the use of credit cards by physicians. The delegates considered this a new concept that required more thought before making a final decision.

Never before have I been so impressed by the total democracy of your House of Delegates. All resolutions of any controversial nature were ably defended and ably attacked. The Speaker, Tom Taylor, and the Vice Speaker, Clair Conard, kept the proceedings moving smoothly and gave all interested parties complete freedom to be heard.

You who missed it, should not have.

LELAND SPEER, M.D., *President*



Editorial COMMENT

Regulation of Trade in Drugs

Senate bill 1575 was introduced by Senators Hart of Michigan, Magnuson of Washington, and Moss of Utah. Its purpose is to regulate trade in drugs and devices by prohibiting the dispensing of drugs or devices by medical practitioners and their participation on profits from the dispensing of such products, except under certain circumstances.

This bill would have Congress find that the dispensing of drugs and devices, directly or indirectly, or the knowing receipt of rebates, refunds, discounts, or commissions by medical practitioners in connection with the supplying of drugs and devices to patients (except as provided below) (1) is inconsistent with the best interest of the public health; (2) denies consumers free access in an open market to such products moving in interstate commerce; and (3) tends to induce unfair trade practices in connection with such products.

The bill would make it unlawful for a drug company to give or sell a medical practitioner a beneficial interest in the company with the intent of inducing the physician to prescribe the company's drugs. The test of intent: If the drug company did not offer this beneficial interest (such as stock) first to the public, it would be assumed that it was acquired by the physician with the intent to cause the physician to prescribe the company's drugs. . . . It would also be unlawful for a medical practitioner to solicit or receive from a drug company any rebate or other valuable consideration based upon the volume of sales of the drugs manufactured or distributed by the company. . . .

Except in emergencies, or on a single dosage basis, or where there is no community pharmacy, it would be unlawful for a medical practitioner to routinely dispense drugs or devices directly or indirectly. . . .

In addition, it would be unlawful for a medical practitioner to own a landlord interest in a community pharmacy. . . . An added prohibition in this year's bill precludes federal financial participation in expenditures for drugs or devices, dispensed under a public assistance or medical assistance program, under conditions which are prohibited by the bill.

Mr. Hart's bill contains some interesting and novel definitions. A "medical practitioner" is an individual licensed under state law to engage in the practice of medicine, osteopathy, chiropractic, or podiatry. Excluded are ophthalmologists, homeopathic physicians, dentists, veterinarians, or optometrists. The term "device" would not include glasses or lenses intended for the correction of vision. "Community pharmacy," when used in relation to a medical practitioner, means "a pharmacy situated within ten miles of any place at which the medical practitioner maintains an office for professional practicing."

Deferred Compensation

Confucius would say, "Why invest one penny and earn two, when you could invest one-half penny and earn three." This was a comment overheard at the annual meeting of the Society in Salina, in discussions of the recently adopted Kansas Medical Society Deferred Compensation contract (*see* Resolution No. 32). This contract provides the following basic benefits:

1. Any physician receiving income for services rendered to Blue Shield subscribers may request that any or all of this income be invested.
2. The investment may be in interest-bearing securities or in equity securities.

3. The physician may elect the proportion or the type of securities he wishes for his account.
 4. The interest-bearing securities are currently guaranteed a 6 per cent interest annually.
 5. The equity securities have appreciated an average 20 per cent each year over the last five years.
 6. Each year, the physician may shift his position, equity to interest-bearing securities, or interest-bearing securities to equity, without any capital gains tax.
 7. The entire investment may be tax deductible.
- A full and complete brochure outlining this entire program will be mailed to you in the near future.

It is our understanding that this will be in operation just as soon as the mechanics of programming the computers can be accomplished through Blue Shield, and Great Plains Life Insurance Company, as the plan administrator, has installed the administrative procedures necessary to enroll the individual physicians in the program.

Dr. Layton Replies

The report of the Blue Shield Study Committee, published in the April issue of the JOURNAL carried a statement attributed to Ira C. Layton, M.D., vice chairman of the Board of Directors, National Association of Blue Shield Plans.

In a letter dated April 23, 1969, Dr. Layton requests a correction be made because he feels he was not accurately quoted. He commends the committee and states his belief that there is a need for greater understanding, and then wrote concerning one statement appearing in the report:

Several months ago, I did receive a telephone call from a member of the Committee, and we discussed briefly the National Association of Blue Shield Plans. At no time during that conversation was there any discussion of fees, methods of payment of fees, service versus indemnity or usual and customary. During the past fifteen years, I have been intimately associated with Blue Shield, and my attitudes have been totally in support of the service benefit concept. I have spoken in many places throughout the country on behalf of service benefits. During recent years, as plans have been moving away from fee schedules, I have been equally strong in my support of the various usual and customary programs on a full-payment basis. This is obviously not in keeping with the Study Committee's statement quoted above. May I also note that although the subject of my "interview" was the National Association of Blue Shield Plans, I see little in the section of the report which deals with NABSP that could have been provided by me, and I sense inferences which should not have come from my telephone conversation.

Again, let me say that I am heartily in favor of the purpose of your committee. I can only assume that this error occurred because of the long period of time which has passed since our conversation took place, resulting in someone else's opinions mistakenly being ascribed to me.

CP + T Newsletter

(Continued from page 291)

heart in one second is $1/60$ of the cardiac output (6 L/min.) or approximately 100 ml. All of the injected drug would reach the right heart, pass thru the lungs and reach the left heart and aorta before much distribution occurred. Therefore, the concentration of drug in the blood expelled into the aorta would be $\left(\frac{100 \text{ mg}}{100 \text{ ml}}\right)$ or 1 mg/ml for the period of one second in the heart. This is approximately 400 times the level that will be achieved at equilibrium. It can also be seen that even if the lidocaine were distributed in the total circulating plasma within one second, there would still be after the one second injection a transient concentration 30 times higher than that achieved at equilibrium.

The level of lidocaine in plasma decreases very rapidly following injection of a bolus because of distribution and metabolism. Since the enzymes required to metabolize lidocaine are in the liver, many patients with liver disease will require a smaller dose of drug to maintain a therapeutic blood level. Indeed, the recommended dose may cause a toxic plasma level of the drug in such patients. It should be obvious that in order to maintain a therapeutic effect following administration of the initial bolus, a constant intravenous infusion is required to maintain adequate blood levels. This infusion is administered at a rate of 20-50 $\mu\text{g/kg}$ per minute.

Finally, although rapid injection of the recommended doses are safe for lidocaine administration, most other drugs should be administered very slowly when given intravenously so that high concentrations do not reach the heart or other sensitive organs.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

John H. Maxwell, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Irvin A. Rothrock, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Official Proceedings

1969 Meeting of the House of Delegates

Transactions of the 110th Annual Session of the Kansas Medical Society are published in this issue of the JOURNAL. During the first session the chairman of each of the five commissions made his annual report. Resolutions not previously published in the JOURNAL were introduced. All resolutions, with the exception of numbers 4, 38, and 40 which were adopted at the first session, were referred to Reference Committee A (Dr. William R. Roy, Topeka, Chairman), or Reference Committee B (Dr. George E. Burket, Jr., Kingman, Chairman).

The resolutions appear in numerical order under the minutes of the second House of Delegates. Resolutions failing to pass and those referred back to committee are retained in the minutes at the executive office, but are not recorded here.

FIRST SESSION

The first meeting of the House of Delegates convened at 3:00 p.m. at the Statler Hilton Inn, Salina, Kansas. The meeting was called to order by the speaker, Dr. Thomas F. Taylor, Salina.

The primary election was held for the office of second vice president, and nominations were taken from the floor for the offices of speaker and vice speaker of the House of Delegates. The election of officers for all positions will be held at the second meeting.

Dr. C. M. Lessenden, Jr., Topeka, read the treasurer's report. He stated that the results of the special assessment had been excellent. Approximately 400 have not yet paid, and many had paid who were not required to pay this assessment.

Dr. James A. McClure, Topeka, chairman of the Advisory Committee to Welfare, reviewed the work of his committee and announced that because of an emergency action by the legislature a supplemental appropriation of six million dollars state and federal money eliminated the necessity of prorating Title XIX fees this year. He also announced that the director of the Department of Administration, Board of Social Welfare, requested physicians submit their fees monthly, even if their work is not completed. This will improve the accuracy in budgeting the program.

Mr. Oliver E. Ebel, Executive Director, announced the reorganization of the field service divisions of the American Medical Association, and introduced Mr. David Weihaupt, the new field representative for

Kansas. Kansas is now in the division with Iowa, Nebraska, Colorado, Wyoming and Utah, and Mr. Weihaupt's office is in Denver, Colorado.

REPORT OF THE CONSTITUTIONAL SECRETARY

Following is a summary of the membership of the Society for 1969.

Dues paid members	1,511
Delinquent members	195
Emeritus members	91
Honorary members	54
Retired members	6
In-service members	11
Leave-of-absence members	41
	<hr/>
	1,909

The membership in 1968 was 1,895. The 1969 membership represents an increase of 14 members.

SPECIAL REPORTS

The Editor

The editorial content of the JOURNAL for 1968 has been approximately the same as during the preceding year, with the usual departments of scientific articles, theses, clinicopathological conferences, etc. We have had four special issues—the KUMC issue in March, the papers from the Central College Health Association meeting in September, papers from the Southwest Allergy Forum in October, and the issue from the Wichita Clinic in December. Each of these issues made a significant contribution to the usefulness of the JOURNAL, and we are grateful for the privilege of having them. There should be other meetings from which papers could be published, and other groups—associated either in practice, or by specialty, or by geography—that could provide good future issues for the JOURNAL.

My reports to you in recent years have presented views of the financial picture varying from the optimism of being in the black, to the pessimism of large deficits, even raising the question of the continuation of the JOURNAL at all. In 1967 we were in a better state, with a little margin of income over expenditures. This past year the picture has again reversed, and as you will note from the report of the Treasurer which is in your hands, we had a deficit of \$1,641 during 1968. There is, however, an additional income of \$856 interest on our various savings accounts, which will reduce the actual deficit to \$785.

We of the Editorial Board do not like operating under a deficit any better than any of the rest of you would, but we try to take some comfort from the fact that there were better years in the past, when we were able to lay aside some reserves, which now help to tide us over leaner years. Also, although the JOURNAL receives \$2.00 from the dues of each of you for your subscription, the production cost per copy is about \$12 per year, so at least the members are not having to pay for the total picture.

The decrease of advertising income has not been unique with us, for the Bureau (State Medical Journal Advertising Bureau) had total business which was lower for 1968 than for 1967. We would, of course, all like to have an enterprise such as the JOURNAL be entirely self-supporting, but at the present time do not see how this can be accomplished without a significant change in the size, make-up, or format of the magazine. Perhaps some of these changes are in order, but unless there is some sort of direction from the House of Delegates, or some significant group of our members, we feel that it is our duty to try to make the JOURNAL contain as much useful information as possible, and to put it in as attractive and palatable a form as possible.

As an example, we are constantly being besieged with requests to change the JOURNAL to intersperse advertisements throughout the editorial and scientific section of the magazine. This we have thought is a compromise with good taste and good format, and while it unquestionably does cost us some advertising income, we think that our readers prefer the present arrangement of reading material and advertising. Admittedly our journal is one of the few which is still maintaining this form, and again, the wish of the membership is the guide which we wish to follow. If you feel differently, we want to know it.

You are all fully cognizant of the increase in cost of all elements of our everyday life. The printing costs of the JOURNAL are no exception to the general rule, and admittedly the rates have been increased rather consistently in the recent years, but I want to compliment Mr. Ovid Bell, for holding the line as well as possible, while still maintaining quality work. We think that the increases which have been passed on to us are fully justified. We have always had the fullest cooperation from our printer, and this is a factor of no mean proportions for this enterprise.

At the present time complimentary copies of the JOURNAL are given to residents, interns and some of the students at KUMC. We have been approached about sending it also to the residents of other hospitals in Kansas, and the Editorial Board looks with favor on the project. It would, of course, increase somewhat our deficit, but hopefully should be a good investment in terms of the effect on residents

working within the state. I believe that unless there is instruction not to extend this complimentary distribution, it will probably be put into effect.

I want to say again, as I have in each of the past 17 years, that I sincerely appreciate all the work which has been done by the Society staff (which is principally by Mrs. Mary Rogers and Mr. Oliver Ebel), by the Editorial Board, and by the many others who have helped with soliciting, writing, or editing papers, and have otherwise done so much to make possible the publication of the JOURNAL. It is the work of these people that has made it possible.

ORVILLE R. CLARK, M.D., *Editor*

KaMPAC

The KaMPAC Committee has met periodically during the year in their endeavors to aid in the election of United States Representatives of Congress and the United States Senator from Kansas. These individuals were thought to represent the interest of the majority of the members of the Kansas Medical Society. We were successful in our choice in that all of our candidates were elected.

Your KaMPAC Committee has a workshop scheduled for October 12, 1969, in Topeka. The format will be decided shortly after our representatives return from the National Workshop of the Public Affairs Committee of the AMA. As soon as a decision is made on the format, the membership will be notified.

We will appreciate it if those of you who do not belong to KaMPAC will stop by the KaMPAC booth and make your contribution.

NORTON L. FRANCIS, M.D., *Chairman*

Utilization Study Committee

The Utilization Study Committee (USC) has been active in an advisory capacity during the past year. No resolutions have been prepared, but because of the importance of utilization to the Kansas Medical Society and to the people of Kansas, I feel a report should be made to the Kansas Medical Society.

At its inception the Utilization Study Committee was charged with coordination of utilization activities in Kansas and to assist the fiscal administrator of Titles XVIII and XIX in satisfying their obligation to the federal government for operation of their plan for payment of medical care.

The rules concerning utilization, covered services and means of administering the program are determined by the broad concepts set down by Congress and HEW. These rules are transmitted to each fiscal administrator who in turn implements these rules and regulations to the best of his ability. We

are fortunate in Kansas that the implementation of the rules is left as much as possible to the Kansas Medical Society and the local Utilization Review Committee (URC) by the fiscal administrator. Outgrowth of this concept caused the formation of the Utilization Study Committee of the Kansas Medical Society so that the society would have a coordinating body concerned with effective utilization.

The responsibility for utilization rests with the local attending physician, the local utilization review committee and the Utilization Review Panel (URP) of the fiscal administrator, all attempting to make the federal laws work for effective utilization.

Utilization, in its simplest terms, is the concept of Medical Necessity determined by the attending physician, subject to peer review (URC and URP) of information appearing on the record to support the medical necessity.

Utilization must be done! Both as to length of stay and as concerns professional utilization. This has been stated by law. How it will be done has not yet been prescribed by law. The federal government is still looking to the medical profession for guidance and help in implementing these aspects of the law. Utilization is more equitable and effective if done on the concept of Medical Necessity. The attending physician, with peer review of recorded information, is the logical and only person able to determine medical necessity, and by this to determine effective utilization.

Some state medical societies have already lost any control over the medical supervision and appeal of Title XVIII and Title XIX claims and are dependent upon a single person, professional or otherwise, for final interpretation of rules and no apparent appeal from his decision.

We physicians of Kansas still have the opportunity of providing effective utilization for our patients' needs. How long this opportunity exists depends in a large part upon our ability and willingness to accept what is our logical responsibility and what in truth we alone can accurately determine.

The Utilization Study Committee has done several things to help promote effective utilization at the local level, for example:

1. Completed workshops in all districts in Kansas to which hospital administrators, URC chairmen, medical staff presidents, record committee chairmen and record librarians were invited.

This presentation included:

- a. Purpose of Utilization Committee:
Suggested URC composition.
Suggested format for URC function and activities.

Suggested responsibilities of the medical staff and of hospital administration.

- b. Purpose of Medical Audit Committee:

Suggested committee composition.

Suggested format for MAP function and activities.

Suggested responsibilities of medical staff and of hospital administration.

Suggested educational benefits which might accrue to the staff and to the hospital.

2. Placed copies of the above information in the hands of all hospital administrators and all Utilization Review Committees.

3. Advised the fiscal administrator on methods of establishing effective utilization in Extended Care Facilities (ECF).

4. Supported the fiscal administrator in procedures they felt would help educate the ECF, both administration and review committees, in the interpretation of covered and uncovered services according to federal law. These methods include ways to help decrease the time involved by the utilization review committees and to perhaps achieve pre-entrance certification on the basis of hospital URC approval to help prevent retroactive denial of benefits.

5. Advised the fiscal administrator on establishing a Utilization Review Panel for their professional guidance for Title XVIII and Title XIX claims and helped establish guidelines for URP activities within the federal laws.

6. Established guidelines for length of stay in hospital cases for use by local Utilization Review Committees in their own activities.

7. Recommended that utilization procedures must not be double-standard but apply to all diagnoses.

Soon information will be sent to all hospital URC relative to recommendations regarding length of stay for 100 of the most frequent hospital admissions. These facts are to give URC suggested guidelines for use or modification in their own hospitals.

Ongoing educational features will be sent to all ECF for the guidance of their URC within the legal definitions of UCF functions and type of care.

Your committee is making a concerted effort to provide the local URC with helpful material so they can fulfill their responsibility to the hospital and the responsibility of all physicians to the most effective utilization practices.

Your Utilization Study Committee wishes to thank the members of the Kansas Medical Society for their past work and requests your continued support and more active participation in the program of effective utilization based upon the concept of Medical Necessity.

Remember—Utilization is not complicated—we

just make it so. Utilization—Medical Necessity—peer review of records—assures that the recorded material supports the medical need. Our responsibility is to see that it works effectively. If we default on our responsibility, we have no logical complaint when utilization is taken over by federal agencies.

FRANCIS T. COLLINS, M.D., *Chairman*

USC	Utilization Study Committee (Kansas Medical Society)
URC	Utilization Review Committee (Individual Hospitals)
URP	Utilization Review Panel (Fiscal Administrator)
ECF	Extended Care Facility
ECURC	Extended Care Utilization Review Committee

Title XIX in Kansas

As Coordinator of Medical Services to the State Board of Social Welfare, I want to bring you up to date on some of the phases of the Medicaid program, list some areas of concern, compare our program with those of other states and solicit your help, both individually and collectively, in maintaining our program at a high level of proficiency.

The print-out of payments to physicians for February 1969 were analyzed. Sixty-six providers were paid sums ranging from \$1,000 to \$6,000 (two or three of these were partnerships using the same provider number). There were seven clinics that received proportionately higher sums. The remainder of the approximately 1,500 physicians who submitted claims were paid from a few dollars up to \$1,000. The overall average payments for noncoded procedures were:

1. Office procedures	\$4.25
2. Home visits	4.40
3. Inpatient hospital visits	4.21
4. Nursing home visits	3.21
5. Outpatient hospital visits	5.89

The average payments for these same services for December 1968, January and March 1969 varied less than 10 per cent—some higher and some lower.

One must realize that these figures do not represent the entire charges for the services rendered but only represent Medicaid's responsibility. Approximately one third of Medicaid recipients are over age 65 and services rendered in their behalf are partly paid for by Medicare. Medicaid picks up the balance where Medicare leaves off. This is well demonstrated in payments above as most nursing home visits are to patients over 65 years of age and Medicaid's liability after the Medicare payment is low, in contrast with outpatient hospital visits where a high proportion of the patients would be under 65 years of age. The other categories of care would involve a more evenly

distributed age group and those charges fall in between. This hypothesis is further borne out by the service charges by those specialists such as pediatricians and obstetricians who would be more frequently serving a younger group of patients. Analysis of their payments reveals an increase of about 25 per cent above the average. In analyzing the February payments for the 73 provider numbers receiving over \$1,000, 41 received over 50 per cent of their total from coded procedures (surgery, obstetrics, laboratory, x-ray, etc.), payments for which are determined by range maximums. Payments made for the five services above quite closely followed the averages with the variations that would be anticipated by type of practice or location of practice.

It is interesting to note that the same providers consistently receive sizable sums each month for their services to Medicaid recipients. This confirms our opinion and the experience of other states that a small percentage of physicians serve the largest segment of Medicaid recipients.

It would appear, in general, that the physicians in Kansas are conscientious in rendering care to Medicaid recipients, and that their charges for these services have been moderate. However, there are certain providers whose claims warrant closer scrutiny, not only from the standpoint of charges but also on the basis of utilization. Before long a more sophisticated method of computer analysis will be developed, not only as it affects all providers, but also as it affects individual providers.

As you know, Kansas physicians are paid their usual charges as long as that charge does not exceed the range maximum as established under the prevailing charge plan of Blue Shield. Only seven other states operate under the usual, reasonable and customary concept. Ohio and California pay 60 per cent of usual, reasonable and customary charges; New York 80 per cent, and according to the *Albany Times*, this is being slashed by 20 per cent. The remainder of the states operate under a fee schedule which is distinctly lower than the range maximum in Kansas. For instance, the Maryland fee schedule is about 40 per cent of the Kansas range maximums and Massachusetts is about 60 per cent.

According to the press, the Department of Health, Education and Welfare is developing more restrictive guidelines as concerns payments to providers in the economy move to reduce federal expenditures. The exact formula of these proposed restrictions is not now available, but it is thought that the federal government will only accept liability for their share of the provider costs up to the median or average charges of the Blue Shield plans that are currently in force. If this be so, and since the overwhelming numbers of Blue Shield contracts in Kansas are of the prevailing charge type and there is only a small

per cent of the lower benefit contracts, it would stand to reason that payments for services in Kansas would not be greatly altered. Instead of a provider being paid his usual charge as long as it did not exceed his registration or the range maximum, he would be paid his usual charge as long as it did not exceed his registration or the median charge.

Professional utilization review is also being stressed by the Department of Health, Education and Welfare, not only in Title XVIII (Medicare) but also in Title XIX (Medicaid). This matter has been brought to the attention of the Advisory Committee to Welfare, chaired by Dr. James McClure. The Advisory Committee is introducing a resolution to this House of Delegates meeting designating potential mechanisms for professional auditing. It is their opinion—and it seems realistic—that all utilization, be it professional, hospital or skilled nursing home should be placed under the aegis of one state committee, as many of their studies are inter-related or overlapping. Consideration and recommendations of this committee will serve as a basis for the eventual revision of the Guidelines to Physicians caring for Title XIX recipients.

Let me again reiterate that Title XIX has had a successful beginning in the state of Kansas. This is confirmation of the fact that dedicated physicians, when given the opportunity, can collectively solve the problems of medical care for the unfortunate, both professionally and financially. However, there are a few physicians who are not so dedicated to the basic principles of good medical care at a reasonable cost. It is these few who must be apprehended and counselled by the professional review committees. By so doing we can continue to live up to the statement of the federal inspection team that Title XIX in Kansas has the potential of being a model for other states to follow.

In short, both in utilization and charges, let us in Kansas adopt as our motto that "Usual, reasonable and customary"—is indeed reasonable.

LUCIEN R. PYLE, M.D.

*Coordinator of Medical Services
State Board of Social Welfare*

Blue Shield

I appreciate this opportunity to make a report on Blue Shield activities during the past year.

In this report to the House I would like to depart somewhat from the blandness of the typical annual report. While I will discuss some of the usual items, such as the financial picture, enrollment growth, etc. I want also to speak to some of the concerns that filter back to the Blue Shield Board and Executive Committee.

This has been a year of progress and travail—The

travail was born of massive undertaking—and some mistakes—But the vital signs are still healthy and the prognosis is encouraging.

From a growth standpoint, 1968 was a good year. More than 1,900 new groups were sold. The Plan's net gain was 26,000 plus subscribers, increasing total enrollment to 690,000. Approximately 37 per cent of the population has Blue Cross and Blue Shield coverage.

In the benefits area, currently about 96 per cent of locally controlled Blue Shield subscribers have some form of Prevailing Charge coverage. Approximately 4 per cent have *Fee Schedule Z*. Also, there are national accounts whose benefits are determined outside the state. Fee schedule coverage still exists for Low Option Federal Employee and Southwestern Bell employees; however, the overall fee schedule type coverage is diminishing in Kansas. Prevailing Charge coverage, offering high-level benefits and full predictability continues to appeal to the public as illustrated by the Plan's substantial growth even with the loss of the state employees.

The financial picture for 1968 showed Blue Shield reserves at a little over five million dollars—which represented two and a half months of normal claims and operating expense. Blue Shield reserves during 1968 increased some \$650,000. Income from Blue Shield dues was almost \$25,000,000. Incurred claims expense was roughly \$22,000,000.

Unfortunately, the same did not hold true with Blue Shield's companion Plan. While Blue Cross had planned for a large increase in hospitalization expense the actual increase proved to be about 11 per cent above the forecast. The result caused withdrawal of almost \$4 million from Blue Cross reserves.

In an effort to stop the Blue Cross reserve drain, member hospitals' payments have been prorated 4 per cent since January. This proration is in addition to increases of 35 to 40 per cent in most Blue Cross rates.

There was no increase in Blue Shield's basic rate this year as medical charges have stayed in line with the cost of living, up about 3 per cent. We have already notified the physicians in Kansas of this fact and I repeat my expression of appreciation to all physicians for their support and concern over costs of medical care to the people of Kansas.

A year ago the House passed as Resolution No. 55 the Blue Shield Prevailing Charge Policy Statement. That resolution provided a written framework of policy which served as a firm foundation for the Prevailing Charge Program to be administered in the best interests of medicine and the public.

After months of work between Blue Shield staff and liaison committees of specialties and general practice, special Prevailing Charge Policy Memos,

amplifying and clarifying the intent of the statement were communicated to the field.

There have been a dozen or more of these memos mailed within the past six months, and as specific policy is formulated through various committees, additional policy memos will be circulated.

During this convention you will be asked to help decide Blue Shield policy on the itinerant surgery question—not whether itinerant surgery is good or bad—but how Blue Shield should handle itinerant surgery claims in the best interest of medicine and the public when itinerant surgery is practiced.

As representatives of Kansas medicine you will be asked to decide policies on these questions and others that will arise. Blue Shield policy issues require the involvement of Kansas medicine. I believe the development of this fine body of written policy statements helps to demonstrate that Blue Shield comes to you for understanding and assistance in policy development.

Back in 1966, Kansas Blue Shield submitted a report to the Social Security Administration outlining the method by which customary charge determination would be made in Kansas. The method outlined was identical to the method to be used for Blue Shield claims. This proposed method was accepted by the Social Security Administration, at least tentatively at that time.

The current basic ingredients of charge determination are:

1. A physician's registered charge is his customary charge. A registration may be changed with 30 days notice.

2. The maximum allowable is that amount which would pay the charge of 90 per cent of the physicians or 90 per cent of the number of services for a given procedure whichever is higher.

In a meeting in Baltimore last January we were told to change the method of determining a customary charge by waiting until the physician has made the charge frequently enough to call it a custom. Also we were told to compute the ranges as follows:

The range for each procedure would be calculated on the mean + 1 standard deviation, using specialty groupings, as well as groupings by significant localities.

These changes have not been implemented yet. We are currently studying these approaches to see what effect they will have. We may end up with two methods—one for Blue Shield and one for Medicare. Certainly we will not change the Blue Shield method unless it is more equitable and unless it is cleared with you.

On the subject of Medicare, I would like to say this: We are performing the service at cost. If it is a helpful service to the public, and to you, we want to continue it. But we hope you understand that we must follow the regulations of the program. We hope you will not resent Blue Shield for being the bearer of these tidings. It is not too pleasant to be asked to administer a governmental program and then be damned for carrying out the government regulations.

Administration of Title XIX continues to be one of our major programs; also one of our major concerns. We contracted with the Board of Social Welfare to service Title XIX at a rate which reimburses us for about half the cost. This matter was discussed at length by the State Subscribers' Council on April 25. We propose that the Board adopt the recommendation of the State Subscribers' Council, to the effect that we renew the contract for another three years with reimbursement based on reasonable costs, provided the Kansas Medical Society requests us to do so, and provided, further, that the Society supports the position that reimbursement shall equal the costs of servicing the program.

Ten years from now I would reckon that Blue Shield will have forgotten its Title XIX trauma. Rather, the loss we now are suffering under this program will be seen as a stimulus to significant improvement in administrative procedures so that the overall Title XIX impact will be reviewed as having been favorable to Blue Shield's development.

The most meaningful act of the Board was to elect the officers and Executive Committee, much the same as this House of Delegates does for the officers and executive committee of the Kansas Medical Society.

This problem bothered all of us—Members of the Board, the Executive Committee itself, and the Blue Shield staff.

In fact, the staff has introduced the question as to the role of Board members on several occasions. A formal survey was made last year to find out what the different members thought the role of the Board should be. Each time the matter has been resolved as follows:

The Board realizes that if it wants to be involved deeply in each policy question, it will have to meet monthly as the Executive Committee meets. It was agreed that policy proposals will be distributed in advance to all Board members; that any member would be welcome to attend any Executive Committee meeting. The real function of the Board member is to review and evaluate the performance of the Executive Committee and staff and to elect the officers and Executive Committee of the corporation each year, as well as to represent Blue Shield in his district.

In effect, the Board finally verbalized a simple fact; when they elected their Executive Committee, they elected a group they had to trust, at least for one year.

I have discussed this question at some length because I realize that people who are not in the center of a given situation can jump to some rather misleading conclusions as to what is really going on.

As a member of the Executive Committee for eight years, I can tell you that much more consideration is given to policy questions than people on the outside could possibly imagine. Also, I know that the interest of medicine as well as the public go into every important decision.

My main point is this: You have in Blue Shield an organization responsive to the direction of the medical profession as represented by the physicians who serve on the Board and on the Executive Committee. If you don't trust us, you should elect a new bunch.

As rumor has it, there are those who have tried to make the point that the Board and the Executive Committee, itself, are too much inclined to follow staff proposals.

When you are in a setting as long as I have been and when you see month after month the give and take of staff presentations and Executive Committee reactions, I can say with confidence that policy is being set by the Executive Committee—not the staff. The fact that there exists a spirit of confidence in the judgment and integrity of the staff does not alter this conclusion. The staff still has to hammer out every policy it proposes.

The third, and last, point is that staff people, oriented to the hospital point of view are running things—And to the advantage of the hospitals.

It is true that Blue Cross started first and that several of the key staff people got their original experience working for Blue Cross only.

It is true that some of the key staff worked in hospitals before coming to work for Blue Cross and Blue Shield, but where do you find people who are medically oriented except in hospitals? Certainly you are not going to find them in physicians' offices.

What is *not* true is that staff spends more energy on behalf of Blue Cross than Blue Shield, or that Blue Cross dominates the situation. The *opposite* is true. Issues facing pre-payment of medical services are larger in number and more time-consuming in their resolution than those involving pre-payment of hospital services.

For example, in 1968, there were four Blue Cross Executive Committee meetings and two Board meetings. Blue Shield held ten Executive Committee meetings, and two Board meetings.

I know the key staff members personally. You know many of them. Their main interest, in my opinion, is to continually improve the program we offer to the public. They are concerned with the total package. They attach equal importance to the interest of physicians and hospitals. Any other posture would be foolish since the staff knows, and we know, that unless the sponsors of both Blue Shield and Blue Cross are satisfied, no program will work for long.

On this question of staff's dedication to the interests of medicine, I urge you to trust your Blue Shield Board.

One further item of great importance to Blue Shield is its continuing, effective relationship with Blue Cross. This matter will be referred to you in Resolution No. 30. It would seem improper for me to comment on that resolution at this time. However, tomorrow morning I plan to respond to it before the reference committee. We would welcome the presence and comments of each of you at that time.

JAMES L. MCGOVERN, M.D., *President*

Future Patient Care in Kansas

The Committee on Future Patient Care in Kansas, appointed by Dr. Morgan this year, represents a departure from the concept of usual Society activity. Having experienced this, I want to pay tribute to the practical and inspired genius of Dr. Morgan because he brushed aside criticism of medicine, cut through emotional opinions and asked this committee to explore for the truth about health care in Kansas. When once this is known he wants plans developed for improved service in the future. That is the purpose of the committee.

At the first meeting we established 20 high priority problems. Next, we set about to knock them off one by one.

At about this time the truth hit us. We all want high quality care readily available to all people at reasonable cost. The objective is simple and universally acceptable. Areas that need improvement are apparent to anyone. Nothing about the work of the committee is difficult except the solution. (It was only at the point of improving future patient care in Kansas that we were confronted with dismay.)

We met again for a closer look, and we decided to adopt a scientific approach just as we do in our daily practice. Our patient is the people of this state. We saw our responsibility toward the people as we view the individual who enters our office, and proceeded as a committee in the same way we practice medicine as individuals.

FIRST THE COMPLAINT

As is so often the case, there was no one single problem. There are many areas of uneasiness, vague discomfort, and some acute pain, generally widespread throughout the body of the citizens of Kansas. As is so often the case in our professional experience, some symptoms appeared at first glance to be physical, others emotional—some real, some imaginary. But to our patient they are important.

THE EXAMINATION, INCLUDING A COMPLETE HISTORY

We could argue with our patient that a doctor sees more people today than did the horse and buggy doctor, that his professional influence is extended to a broader sphere than before, but when we do this, it is like telling our individual patient he doesn't hurt.

The truth is we do not know until the examination is completed. The analogy between our problem as a committee and as individual physicians is accurate. We cannot rely solely on the classic textbook description. We cannot apply to this patient what we have heard about another patient elsewhere. Our problem is the people of Kansas and until we know what is wrong here, it is futile to attempt treatment.

Therefore, our examination has begun. We selected areas of study that we hoped would have a chance for success.

First, we have begun taking the history, asking questions of our patient. During the legislature, the committee invited for dinner the Public Health and Welfare Committees of the Senate and the House. This was an interesting evening in which we requested the opinion of a group of men with a special interest in health and from a wide geographical background and diversified experience. They spoke of the lack of general practitioners in the rural areas, that the void was being filled by less qualified people. They wondered whether well trained corpsmen recently out of the service might be useful in rural areas. They suggested the medical school should be expanded, that medical education be condensed. They wondered why Kansas does not retain a higher per cent of its graduates. They suggested broader opportunities for internship in the state. They wondered if the public health service could enter the area of health care through the use of nurses. They worried about the future of the rural hospital. They spoke of subsidization of physicians.

All this was interesting—a description of the symptoms from the patient's point of view. The committee expects to conduct additional interviews with other selected people in the hope that the history will be more complete.

At the same time your committee is beginning to conduct the examination in an effort to establish the validity of the complaints. We are quite seriously attempting to dismiss preconceived ideas and unfounded opinions. One portion of the examination was conducted through consultation with the members of the Kansas Medical Society. The long questionnaire concerning your individual practice, the number of patients you see daily and where they come from is now in the process of analysis. The results of your collective expression will be of assistance to this committee. We will advise you of these findings when they become available.

Another project in the course of our examination is to conduct a review of how emergency care is handled throughout the state. Another questionnaire on this subject is in preparation. It will be sent, hopefully, during the summer to the secretary of each component society with a request that copies be forwarded to selected physicians representing the smallest as well as the largest communities in the state—areas with and without hospitals.

At the same time and in close cooperation with this committee, Dr. C. E. Brackett and Dr. Richard Brose, of the University of Kansas Medical Center, are exploring emergency care with a specific aim toward the treatment of head injuries. Their findings will be correlated with those arriving through the questionnaire once more for the purpose of establishing facts.

We hear today that improvement needs to be made in communications—that doctors are often unavailable during the night and on week ends.

The committee learned that communications systems are not coordinated in Kansas. This was presented as a symptom and has not been established as a fact. However, Nebraska has created a central control system through which radio bands of amateur operators, the highway patrol, the Civil Aeronautics Authority, the weather bureaus and local police and sheriff bands can be linked together. A study of this will be made in depth.

THEN FOLLOWS TREATMENT

We are hopeful that as the examination is conducted additional information will be discovered that will assist us in recommending a course of treatment. The treatment, exactly as it is in our professional work, will be designed to eliminate the symptoms. It will be directed toward improved future patient care in Kansas. Your committee expects to work closely with many official and voluntary health agencies and associations. First, to prevent wasteful duplication and, second, for the purpose of accelerating results. To name only a few the committee has already determined shall be in close partnership with

the Society will be the University of Kansas School of Medicine, the State Board of Health, the State Advisory Commission for Comprehensive Health Planning together with a variety of professional associations.

Out of all this surely a benefit will come to the people of Kansas. Something will be accomplished in the greater production of physicians and ancillary professional personnel. Something will be accomplished in aiding the physician toward improved efficiency in the distribution of his effort. More effective use of ancillary services may be discovered. It is possible that improved means of transporting patients could relieve personnel shortages in less densely populated areas. Perhaps ideas will grow out of these studies that have not yet been imagined.

In summary, your committee is impressed with the many satisfactory reports the public has expressed about the quality of medical care provided in this state. We feel that some of the current public opinions represent lack of information, that some public opinion represents inaccurate information and finally that some public opinion represents failure for complete coverage of health care to all people. We hope to find a way whereby this Society may provide the public with accurate knowledge in those areas where it currently is misinformed, to give more complete information in those areas where the public is uninformed and to make improvement where possible in the availability of high quality medical service to all people. This represents the purpose for which Dr. Morgan established the committee. We have made a small beginning. It is our hope next year to present a report containing a record of achievements.

GEORGE F. GSELL, M.D., *Chairman*

The Executive Director

(Mr. Ebel read the following portion of his prepared report, stating that comments regarding future items of legislation, relating to proposed unification of the boards of health and welfare, a program for organ transplantation, and licensing of paramedical personnel, would be presented later.)

This has been a memorable year. Dr. Morgan has been magnificent, but you know that. You have heard the precision with which he speaks and recognize this to reflect the accuracy of his thinking. You know the honor and dignity he gave the presidency of your Society. Because your employees were with Dr. Morgan so much during the year, we were privileged to observe how he works. Never have I known a deeper dedication than your president carried into the office. He is always thorough, meticulous and

honest. But in addition, I was constantly amazed at his concern—regarding the big problems, of course, but he was equally concerned about everything until it has been completely resolved.

Dr. Morgan was never too busy to listen. Then he would ask questions, often of many people. Next, he would weigh alternatives and once the answer became apparent, he would give whatever time or effort was required to completely accomplish the objective.

This is a much better Society for Dr. Morgan's leadership. You are much in his debt, and I am in his debt most of all for his patience and for how wonderfully easy he made this year for me. Yes, he has been a great president and I know Dr. Speer has already asked him to accept a most challenging responsibility for the coming year.

I want to thank the people in our office: Velma, Val, Mary and June, for always being willing to perform any task asked of them, and for always being pleasant about it. No one could have a better staff than we have.

And, Swede is great. He now performs so many services—so well, that I marvel at him. He works awfully hard and long hours and with devotion. I am very happy he is with us, as of course, you are who have watched him work—as here, for example where absolutely all arrangements were made by him. . . .

OLIVER E. EBEL, *Executive Director*

The President

A year ago you elected me to the highest office in our Society. Since that time I have traveled many miles and have sat for hours in countless meetings as your representative. These experiences have given me a broad perspective for comparison of our Society to other groups and I can objectively tell you that I am proud of the physicians of Kansas.

The roots of our Society go deep into the history of our state. We should remind ourselves occasionally that our charter has been in continuous existence longer than the charter of any corporation in the state of Kansas, having been issued on February 10, 1859, by the territorial legislature, two years before Kansas became a state. When Kansas became a state on January 29, 1861, the first Governor (Dr. Charles Robinson) was a doctor and a member of our Society. Furthermore, the first Lieutenant Governor (Dr. James Root) and the Secretary of State (Dr. John Robinson) were also doctors and members of our Society. Our aim—as stated in our original constitution was "to unite the medical profession—and protect the health of the citizens of Kansas." We

couldn't choose better wording if we were to write the constitution today.

To spend ten minutes in reflection, I will first address myself to several areas of concern, and finally I will cryptically summarize our activities of the past year.

I have written and I have spoken of our problems in Kansas in providing direct patient care including:

1. Rural health care—or who cares for the farmer when he suffers a coronary occlusion while riding on his tractor.

2. Emergency care—or the availability of house-call-making physicians—or who staffs the emergency rooms of our 157 acute care general hospitals—or whom do you call when you find a sick youngster in the back seat of your car as you travel through Kansas at night.

3. The delivery of uniformly good care to the citizens of Wichita, Kansas City and Topeka—cities each with their individual problems—and not to be forgotten, the 378,000 people who live in the other 15 first class cities with a population over 9,000, and the citizens in our 90 second class cities, each with over 2,000 residents.

The medical problem in each of these areas, in common with the rest of the country is a shortage of practicing physicians rendering direct patient care. Superficially, the national statistics are misleading—they would show that we have a "proper" number of physicians for our current census. Two simple observations show the fallacy of this basic misconception and in the process expose our present manpower dilemma:

1. Our citizens are increasingly seeking medical care or, put differently, the demand for medical service is constantly escalating.

2. Of the 308,000 physicians in the United States, a third are not in private practice, but are in the military service, in medical education, in administrative positions, or in medical research. Of the 180,000 in practice, a third are in specialties so narrow as to limit their availability for primary care. In essence, this leaves 120,000 of us offering primary care to two hundred million Americans who are constantly increasing their demand for our services.

As long as one third of physicians in the future do not practice medicine, and as long as one third of practicing physicians engage in narrow subspecialties, it is obvious that increasing our medical school enrollments offer little, if any, respite from our present shortage of physicians offering direct patient care.

We have been told there are two solutions to the lack of doctors on the front line of practice. First, we are advised to use "paramedical personnel" and

those who use this term sometimes intimate they are innovators. I say we have been using paramedical personnel ever since the first "medical assistant" helped comfort a cave-man while the physician of that time made a trephine hole in his head with a sharp stone without anesthesia. It is estimated there are now ten workers in the health fields for each physician—counting the visiting home nurses, the nurses on the wards, the laboratory and x-ray technicians, our office assistants and so on down the line. Believe me, we appreciate these fellow workers. But more specifically we are told to reconcile ourselves to having a trained physician's assistant in our office—with two years training—a Mr. Smith with a white coat who will take our histories and do our physical examinations.

Secondly, we are told even by members of our own groups that "group practice" is a necessity to handle the increasing health needs of our citizens. It is true that many of us are in group practice and sometimes this means a group of three such as the group of which I am a member, or a group of a hundred. Yet there are many of us who find the strict definitions in the fine print of the thesis of certain group practice advocates odious in that their stipulations tend to destroy the patient-doctor relationship which we cherish.

Is there not some way medical schools can better orient students toward areas of direct patient care? Are there not ways we practicing physicians can plan on the local level to better patient care patterns short of universally advocating group practices? I think these things are possible.

We hear occasionally that physicians do not have much influence. This is not true. Kansas physicians have a wide and impressive sphere of influence. They have a large group of loyal patients who value their opinion and their friendship. Any physician who has been ill can testify to the overwhelming number of gifts and touching messages which reach his sick bed. A physician who has lost a loved one received a tremendous sympathetic response from his patients. A physician's wife is amazed each year by the deluge of Christmas presents. When you attend a physician's funeral, if you aren't a half hour early you can't get in the church.

Our problem has been that we haven't known how to use this influence to benefit our patients by developing new health care patterns. Your Society is trying to activate this influence by encouraging informed physician participation in local health planning groups—and on the state level by the activities of our newly formed gilt-edged committee on Future Patient Care in Kansas.

In baseball, a player who hears the loud voice of a single complainer or the catcalls of a few hecklers in

a bleacher crowd of 40,000 fans is described as having "rabbit ears." One of the jobs of your president is to have "rabbit ears" and hear complaints for their constructive value. In my travels to the arenas of each of our 18 council districts, I can honestly state that 95 per cent of our members are either actively working in their component society or on the state level in one manner or another—or they are appreciative and generally approving of the Society-directed efforts of their colleagues. For the very few who are non-participants and are disparaging of our efforts, I offer without acrimony or rancor a few comments. In our medical schools there is a lack or almost a complete absence of indoctrination in the advantages of early and active participation in local and state medical societies, and to me it is amazing that physicians learn to perform as well as they do in organized medicine. Furthermore, our daily efforts are absorbed with a succession of audiences of one—a series of individual patients—in the home, the hospital and the office and group sessions are for the most part foreign to us. Coupled with this personal relationship which is our *modus operandi*, is the gravity of the decisions which we must make and the tensions under which we function. A famous banker said a few years ago—he always liked to have a physician on his board of directors because of the humanitarian overtone which he added to the board meetings—but he had noticed over the years that physicians were used to operating in an area of urgency and tension—and if there wasn't an emergency situation facing the board, the physician member always somehow created an emergency since this was his way of life—and then he almost seemed more at home when an emergency situation prevailed. No wonder a physician often has a low boiling point which sometimes reflects itself in tensions with other physicians—and, yes, even with his loved ones.

On the bright side, I have been active in the Society long enough to see what has been a weak council district become one of our strongest. I have seen disparaging, non-participating members become leaders in sound advances in our Society efforts to better patient-care patterns. To our very few complaining members I suggest that your colleagues who are trying to help our patients through organized medicine are just as busy as are you, and the door to active participation in our Society is always open.

I have mentioned that in the medical schools and training centers of our country there is an absence of indoctrination of the students and residents in the advantage of groups of physicians speaking with a concerted voice through organized medicine to improve the lot of our patients.

I feel there are several other areas of almost vacuum proportions in the armamentarium of the phy-

sician leaving his training to establish his practice.

He doesn't know the value or the mechanics of becoming involved in the non-medical structure of his community, the Chamber of Commerce, the Parent-Teacher Association, school boards, and on local lay-dominated health planning boards. Community involvement is not all ghetto medicine, care of the poor or rural health service. It involves all of the small, medium and large size towns in Kansas where most of our citizens live. Most of the physicians I know have been involved in community activities, sometimes almost up to their necks with local, state, and national health planning groups, school boards, local government, and yes—even in the state legislature. Our record is such that it can stand improvement—but considering that we learned the advantages and the need for this involvement by osmosis after we started practice, we are not as bad as some editorials have pictured us. As we, in practice, look back on what we think "community involvement" has been—and as the medical students look ahead to what they think it should be, there may be differences between our interpretations of the term. I predict that when the present students have been in practice five years, and we old codgers have had five more years to adjust to the changing patterns of health care—our views will be much more parallel. One premise which I feel the present medical students and we overworked primary care physicians hold is that our medical school orientation has been lacking in a broad approach to community involvement.

Informed involvement in politics on the local and higher levels, foreign as it may be to our nature, is an activity into which the physician and his wife must venture if we are to represent our patients in obtaining legislation beneficial to their health—and just as important if we are to effectively prevent legislation which we feel is to their detriment. I feel that an introduction at least into this political role could be broached to us by experts in the field when we are in our training years.

In a mundane vein, a physician entering practice has at best a vague idea of the economic aspects of practice, and has practically no conception of how to handle his own finances. The fine wording in medical partnership contracts escapes him. He doesn't know the ins and outs of malpractice insurance. Office management, including the hiring and firing of personnel, the handling of insurance and Medicare and Medicaid claims are items which may bore him, but he must know about them. The details of the Keogh plan, and now, the pros and cons of incorporation are items which he must eventually study just as he does his medical journals.

In these areas: (1) participation in organized medicine; (2) community involvement; (3) political

orientation; and (4) a fundamental introduction to the economics of private practice—most of us feel could have been presented to us during our training years.

Finally, in the nature of a factual inventory of Society activities during the past 12 months, there have been 1,260 physician trips throughout the state and to all sections of the country since last May on Society business.

Our Commissions led by Kenny Graham, Spence McCrae, Bill Roy, Clair Conard, and Tom Gray have functioned smoothly producing the clear-cut resolutions and reports presented to the 1969 House of Delegates.

Our Executive Staff of six has served us pleasantly and efficiently with experienced guidance by Oliver and able assistance from Swede.

During this legislative session, Oliver has kept our officers informed daily of all legislation affecting our patients. Our weekly Legislative Bulletin is matched by no other state. Oliver asserts that he is not a lobbyist. He has spent ten-hour days at the State House during the present legislative session as has been his annual custom. He converses daily with legislators and is so completely in their confidence that they have asked his help in writing medical bills this session. We didn't get everything we wanted this legislature—we never do—but we escaped almost unscathed in that we had to accept very little that we didn't want. Oliver, you're the best non-lobbyist I ever saw.

THE JOURNAL OF THE KANSAS MEDICAL SOCIETY remains among the top few in quality among state journals under the talented guidance of Orville Clark.

The Kansas Medicare and Medicaid programs are still a model for other states, and much of this credit is due to Jim McClure and Luke Pyle.

Our relations with Kansas University Medical Center remain exemplary and whatever differences of opinion we debate are in the nature of a family squabble. We are extremely proud of our medical school.

Our respected AMA delegates, Luke Pyle and Jack Mitchell, have made our influence felt nationally in a measure far beyond our numerical representation.

KaMPAC, our political arm, under the guidance of Norton Francis, has the highest number of members in its history.

In 1968 Kansas physicians and their wives contributed the impressive total of \$18,575.41 to AMA-ERF earmarked for the Kansas University Medical Center. Kansans far outdid their four boundary states in this altruistic annual giving.

In January, the Council acted to purchase a building financed by an assessment of our members. We

now have a base of operations of which we can be proud. It will serve us many years and will strengthen our efforts in countless ways. I urge you to stop by and see your new building. We planned to receive \$70,000 in assessments to supplement a building fund established in 1958. To date, we have received \$65,690 including \$1,490 from 33 non-dues-paying members who were not even assessed and contributions from five physicians who were not even members of our Society.

Looking ahead, your President-Elect, Leland Speer, is a practicing physician. He knows the problems and joys of active practice on the front line. His mature and calm judgment, leavened with a delightful Scotch sense of humor, will steer our Society on a steady upward course this next year.

It has been an honor to serve as your president. I feel that no president has asked as much of our members and I honestly feel that our members have served unselfishly in a manner unequaled by any similar organization.

JOHN L. MORGAN, M.D., *President*

SECOND SESSION

The second session of the House of Delegates convened at the Statler Hilton Inn, Salina, on Wednesday, May 7, 1969, at 9:00 a.m.

Dr. Thomas F. Taylor, Speaker, called the session to order and ballots were distributed for the election of officers, speaker and vice speaker, and nominating committee.

The tellers reported the results of the election as follows:

PRESIDENT-ELECT: Francis T. Collins, Topeka

FIRST VICE PRESIDENT: William J. Reals, Wichita

SECOND VICE PRESIDENT: Kenneth L. Graham, Leavenworth

CONSTITUTIONAL SECRETARY: Emerson D. Yoder, Denton

TREASURER: Chester M. Lessenden, Jr., Topeka

AMA DELEGATE: John C. Mitchell, Salina

AMA ALTERNATE DELEGATE: Thomas P. Butcher, Emporia

SPEAKER: Thomas F. Taylor, Salina

VICE SPEAKER: Clair C. Conard, Dodge City

The caucus of the Council Districts announced the selection of the following to serve as councilors and alternates from their respective districts:

DISTRICT 1: Val Converse, Horton, Councilor; Morgan L. Mollohan, Seneca, Alternate.

DISTRICT 3: Henry F. Coulter, Mission, Councilor; Donald J. Smith, Overland Park, Alternate.

DISTRICT 5: Gerald L. Mowry, Manhattan, Councilor; Richard H. O'Donnell, Clay Center, Alternate.

DISTRICT 8: Sigurd S. Daehnke, Winfield, Councilor; Norman H. Overholser, El Dorado, Alternate.

DISTRICT 9: Spencer C. McCrae, Salina, Councilor; Philip M. Platten, Salina, Alternate.

DISTRICT 17: Not present to report; this will be obtained through correspondence.

RESOLUTION NO. 1

Action on Resolutions

WHEREAS, Resolutions are frequently proposed and passed by the House of Delegates and printed in the JOURNAL OF THE KANSAS MEDICAL SOCIETY, they do not always result in action; and

WHEREAS, They are generally initiated by a committee, commission or individual concerned with a particular health or medical-related area, the resolutions are of importance to the medical community and, if passed by the House of Delegates, indicate mutual concern by the Kansas Medical Society; and

WHEREAS, These resolutions generally state the problems and make recommendations of a particular need, the means for implementation are seldom included; therefore be it

Resolved, That no resolution be proposed to the House of Delegates unless it contains a section indicating methods for implementation; and be it further

Resolved, That those initiating the resolutions, or other interested members of the Society, be required to set up meetings with the involved groups or individuals to state clearly the concerns of the Society, to offer help in solving the problems, and to take whatever steps necessary to bring about the results implied in the resolutions; and be it further

Resolved, That the commissions review the resolutions within the year and report the actions taken and results obtained to the next meeting of the House of Delegates.

RESOLUTION NO. 2

Standard College Health Form

WHEREAS, Practically every university and college in this state requires some type of entrance health information and physical examination; and

WHEREAS, Most of these forms from the different institutions request essentially the same information; and

WHEREAS, It would be of considerable benefit to the student and a valuable aid in the conservation

of time and effort by the physician if a single College Entrance Health and Physical Examination Form were adopted; therefore be it

Resolved, That:

1. The Kansas Medical Society recommend that such a standard form be adopted.

2. The Kansas Medical Society, through its members on governing bodies such as the Board of Regents, actively promote the adoption of same.

3. The Kansas Medical Society, through its members who are staff physicians at colleges and universities, actively participate in conferences to devise and adopt a standard form for presentation to the next meeting of the House of Delegates.

4. The Kansas Medical Society make this resolution known to all college and universities in the state and to all organizations of universities and colleges in the state.

RESOLUTION NO. 3

Comprehensive Health Planning

WHEREAS, Comprehensive Health Planning, because it covers virtually every phase of health, may be the most significant of all federally sponsored health programs; and

WHEREAS, This is distinctive because planning originates at the area level according to area need; and

WHEREAS, The physician is more immediately concerned than is any other person that local planning for health be scientifically sound, unprejudiced and practical; therefore be it

Resolved, That this Society reaffirm its position more vigorously than before and declare that better health care will be provided to the people of Kansas in the future in an efficient manner if physicians today provide leadership in area Comprehensive Health Planning Councils; and be it further

Resolved, That each physician in each area of Kansas become familiar with and involved in the program of Comprehensive Health Planning.

RESOLUTION NO. 4

(Adopted at First House of Delegates)

Thomas F. Taylor, M.D.

WHEREAS, Thomas F. Taylor, M.D., has been since its beginning and continues to be, chairman of the State Advisory Commission for Comprehensive Health Planning; and

WHEREAS, Dr. Taylor contributes a vast amount of time to this program; and

WHEREAS, Dr. Taylor provides sound, knowledgeable and effective leadership to the people of Kansas, including physicians in a program that embraces virtually every facet of health; and

WHEREAS, Dr. Taylor has directed that Comprehensive Health Planning shall be conducted at the area level according to the last judgment of local leadership; therefore be it

Resolved, That this Society express its gratitude to Dr. Taylor for the excellent manner in which he is directing Comprehensive Health Planning in Kansas; for his almost singular approach to the operation of a federally sponsored program in his request for local initiative; for his continual appeal that professional people, including physicians, actively participate in health planning; and for his willingness to serve the Society in this most far-reaching project.

RESOLUTION NO. 5

Forum on Solo Practice

This resolution was not adopted.

RESOLUTION NO. 6

Hearing Aid Board of Examiners

WHEREAS, House Bill No. 1837 passed in 1968 is an act concerning hearing aids and a board of examiners in fitting and dispensing of hearing aids; and

WHEREAS, The board of examiners consists of five persons; and

WHEREAS, There is no provision that the board must have an M.D. Otolaryngologist and a Ph.D. Audiologist as members; and

WHEREAS, The hearing aid dealers should have a majority representation on the board; and

WHEREAS, A board with both an M.D. Otolaryngologist and Ph.D. Audiologist in addition to three (3) hearing aid dealers would immensely broaden the professional basis of the board; therefore be it

Resolved, That the governor be asked to consider the appointment of an M.D. Otolaryngologist and a Ph.D. Audiologist as members of the board.

RESOLUTION NO. 7

Comprehensive Health Planning

WHEREAS, The Kansas Medical Society has previously endorsed and reaffirmed the selection of the Kansas State Board of Health as the Planning Agency for Comprehensive Care in Kansas; and

WHEREAS, The State Board of Health and the Coordinating Council for Health Planning have indicated continuing interest in soliciting cooperation from the members of the Kansas Medical Society; therefore be it

Resolved, That the Kansas Medical Society encourage its Mental Health Committee to take appropriate initiative for integrating mental health prevention and treatment programs into the comprehensive health planning efforts in Kansas with all such Mental Health Committee endeavors to be in close liaison with the Kansas Medical Society's Committee on Comprehensive Health Planning.

RESOLUTION NO. 8

Medical Responsibility in Mental Health Centers

Referred to Committee on Mental Health.

RESOLUTION NO. 9

Gonorrhea Epidemiology

This resolution was not adopted.

RESOLUTION NO. 10

Venereal Disease Reporting

This resolution was not adopted.

RESOLUTION NO. 11

AMA Delegates and Alternates

This resolution was not adopted.

RESOLUTION NO. 12

Bronze Plaque

WHEREAS, The Kansas Medical Society has recently acquired a building for its state offices; and

WHEREAS, The acquisition of this building represents a great deal of time and study by the Executive Committee and the Executive Staff; and

WHEREAS, It is customary for such an endeavor to be noted; therefore be it

Resolved, That a bronze plaque be purchased by the Kansas Medical Society, to be affixed in a prominent place inside the Society building, listing the names of the Executive Committee, the Executive Staff, date of purchase, founding date of the Society, and any other appropriate information.

RESOLUTION NO. 13**Building Committee**

WHEREAS, The ownership of property will require management and expenditure of Building Fund money, general upkeep, and maintenance; therefore be it

Resolved, That a Building Committee consisting of four physicians be appointed by the president of the Kansas Medical Society; and be it further

Resolved, That the Special Building Fund already established may be drawn against by any two of the following three signatures:

1. The president of the Kansas Medical Society;
2. The treasurer of the Kansas Medical Society; or
3. The chairman of the Building Committee.

RESOLUTION NO. 14**Rules of Order**

WHEREAS, There are numerous occasions in the proceedings of the Kansas Medical Society, the House of Delegates, and the Council when it would be advantageous to the Society to be able to suspend its rules to handle unusual situations; therefore be it

Resolved, That item number 12, entitled Rules of Order, be amended by adding a second paragraph which states, "*The Rules of Order and Bylaws of this Society may be suspended at any time by a vote of two thirds of those delegates present.*"

RESOLUTION NO. 15**Amendments to the Bylaws**

WHEREAS, The Committee on Constitution and Bylaws was asked to make some clarifications in the various types of membership categories of the Kansas Medical Society, therefore be it

Resolved, That the following amendments to the Bylaws be adopted.

1.612 **DUES-EXEMPT MEMBERS:** Component societies may designate members to be excused from paying dues in these categories:

1.6121 *Personal Exemption:* Members for whom extended illness or financial limitations create genuine difficulty in paying the dues.

1.6122 *Retirement:* Members who have retired from active practice.

1.6123 *Service:* Members temporarily serving with the armed forces except as provided in 1.7.

1.6124 *Emeritus:* Members over seventy (70) years of age, with dues-paying status for ten (10)

years or more may apply for this category, or elect to retain active membership.

1.63 **HONORARY MEMBERS:** Persons outside the membership of this Society may be designated Honorary Members by a majority vote of the House of Delegates. They pay no dues and may not vote or hold office:

1.631 Members of the medical societies of other states or of foreign medical societies recognized by the American Medical Association.

1.632 Physicians from Kansas, having graduated from an accredited school of medicine, and who are serving outside the United States as missionaries or in educational or philanthropic work.

1.635 *Physicians* from the membership of this Society are named for notable achievement in the field of medicine or extraordinary service in the interest of this Society. They are granted Honorary status by a vote of the House of Delegates and pay no dues, but if they were previously voting members, retain the right to vote and hold office.

1.7 **LEAVE OF ABSENCE:** Leave of absence is granted any member for the period specified by the secretary of his component society, in written certification to the secretary of this Society, excepting that an absence shorter than six (6) months will not alter his previous status. A member on leave of absence for more than six (6) months is exempt from payment of dues in any full six (6) months of absence calculated from 1 January and 1 July, upon certification by his component society. The member's privileges in this Society are suspended for the period in which he pays no dues and until he is reinstated by certification of the component society.

1.71 If leave of absence is taken after the annual dues are paid, they are not refunded. Dues will not be exacted from the member on leave at the time they become payable. If he is absent for a full year or more, the prepaid dues will be applied to the year of his return.

1.72 A leave of absence exceeding one year, calculated from the first certification in the annual report of membership, must be recertified in each subsequent annual report, or until notification of reinstatement (or discontinued membership) is received from the component society.

92.12 The Advisory Committees are:
The Committee on the Auxiliary
The Committee on Medical Assistants

The President-Elect shall consult with the presidents of the respective organizations prior to making his appointments. He may appoint other advisory committees as the need arises.

RESOLUTION NO. 16**Committee on Blue Shield Relations**

WHEREAS, The function of the Committee on Blue Shield Relations should be under the Commission for Sociology and Economics; therefore be it

Resolved, That Bylaw 91.22 be amended to read: "*The Commission for Sociology and Economics recommends and implements policies relating to medical economics, fee schedules, industrial medicines, relation with the Bar Association, servicemen's dependents, Blue Shield relations, and other subjects of socioeconomic nature*"; and, be it further

Resolved, That the chairman of the Blue Shield Relations Committee will be a member of the Commission for Sociology and Economics; and be it further

Resolved, That the District Blue Shield Relations Committees shall be selected by the component or county medical societies.

RESOLUTION 17**Committee on Blue Shield Relations**

WHEREAS, The Committee on Blue Shield Relations is properly under the function of the Commission on Sociology and Economics; therefore, be it

Resolved, That Bylaw 92.12 be amended by deleting the words "the Committee on Blue Shield Relations."

RESOLUTION NO. 18**State Meeting Format Committee**

WHEREAS, The functions of the Committee on State Meeting Format are now under the jurisdiction of the Commission on Society Organization; therefore be it

Resolved, That the Committee on State Meeting Format be eliminated as one of the advisory committees of the Kansas Medical Society.

RESOLUTION NO. 19**Appellate Action**

Be It Resolved, that Bylaw 8.322 (Appellate Action) be amended to read: "*In cases referred by comparable judicial bodies of component societies, the Board of Censors sit in hearing without previous executive committee consideration*"; and, be it further

Resolved, That the Board of Censors *shall* receive

from each councilor a report of any change in membership status of members or prospective members arising from disciplinary action. The board *shall* send such information to the Kansas Medical Society, the component society to which the physician belongs, the American Medical Association, and the Kansas State Board of Healing Arts, and, if involved, to another state medical society.

RESOLUTION NO. 20**Ethical Behavior**

PREAMBLE: Questions regarding the ethical behavior of a member are most properly handled by the component society. In small organizations, the entire society would probably sit as a committee. In societies with 25 or more members there should be a definite committee structure to handle complaints. Except for that, the procedure in a small and large society should be similar.

Be It Resolved, That the Councilor assist the component societies in his district to organize a committee on ethics, or censors, or complaints, or whatever name may be selected. Each component society should record in writing at least the following:

1. The name of the committee, its size, how members shall be named—either by appointment or election.

2. The terms of the membership on this committee should be staggered to assure continuity of experience.

3. The purpose of this committee, its duties and limitations should be spelled out. In general, the committee should be authorized to examine official complaints against a member of the society. It should be empowered to hear the plaintiff and the defendant, and witnesses as may be needed. The committee should be required to act within a specified time period.

4. Each component society should list by name some examples of the type of complaints that would appropriately come before the committee.

5. No complaint may come before the committee except in written form and signed by the complainant.

6. Committee procedures should be spelled out. Upon receiving the complaint, the committee should notify the defendant of the substance of the charges made against him. The committee should arrange a hearing and conduct an investigation after which the committee will make a recommendation in writing which shall be presented before the Society for action.

7. The committee shall preserve a permanent record of its activities and recommendations.

8. The committee may find the charges to be unfounded and when convinced this is true should make a clear recommendation to the Society. Or, the committee may recommend censure, suspension or revocation of membership. The committee may find that the problem cannot adequately be handled locally. The recommendation to the component society would then be that the matter be referred to the Councilor of the district.

9. The committee shall refer to the Councilor, if he is requested to accept responsibility for the complaint, a copy of its records. The Councilor will make an independent investigation and will report his recommendation to the Committee on Ethics (the Council) of the Kansas Medical Society. The Council will conduct its hearing and will report its recommendations to the component society and to the Kansas State Board of Healing Arts if findings are sustained.

10. The defendant physician may appeal the decision of the component society to the Committee on Ethics of the Kansas Medical Society through the Councilor of his district. He may appeal the decision of the Kansas Medical Society to the Judicial Council of the American Medical Association.

Be It Further Resolved, That in the larger societies a separate investigating committee perform the duties defined above and that a report of the investigation be referred to a board of censors, and that the censors prepare the report for the Society. The effect of this resolution is to afford the defendant the opportunity of an investigation by a second committee.

RESOLUTION NO. 21

Individual Responsibility

PREAMBLE: It is fully recognized that an overwhelming majority of all doctors of medicine abide by the requirements of Medical Ethics. Such are welcomed into the family of organized medicine. Committees on Ethics and Censorship should carefully avoid the slightest unnecessary obstacle that might discourage the ethical physician in his effort to unite with a medical society.

Because the unethical behavior of one member reacts to the disadvantage of all and to the Society, it is considered appropriate that the applicant express his willingness to abide by such principles as are afforded by the Society; therefore be it

Resolved, That each component society require

every applicant for membership to sign a statement which includes, but is not limited to, the following:

"I agree to be governed in my professional activities by the Principles of Medical Ethics.

"I agree to the Bylaws of this Society, and reserving the right to appeal, I will abide by the Principles of Medical Ethics of the American Medical Association."

RESOLUTION NO. 22

Committee on Membership

WHEREAS, The history and the previous experience of the applicant to membership is a source of much information; and

WHEREAS, Lack of information in an interval of even one month may be of significance; therefore be it

Resolved, That each component society should establish a committee on membership, which shall:

1. Receive in writing from the applicant an account of his professional activities from the date of his graduation from medical school to the present.

2. Satisfy itself that all periods are fully and correctly covered.

3. Report its findings to the Society.

RESOLUTION NO. 23

Probationary Membership

WHEREAS, Many component societies require each applicant for membership to enter a period of probationary membership prior to his election; and

WHEREAS, This period serves to acquaint the membership with the quality of the applicant's professional service, his character and his ethics; and

WHEREAS, A short probationary period may defeat its purpose by calling for a vote before the applicant's past record and his present performance can be fully evaluated; therefore be it

Resolved, That the House of Delegates encourage each component society to require a one-year probation period of each new applicant and that each councilor be requested to assist the societies in his district to accomplish this procedure.

RESOLUTION NO. 24

Membership

Be It Resolved, That component societies be encouraged to form a membership committee with the

purpose of acquainting physicians in training and those physicians who are not now members with the Kansas Medical Society, its policies, and advantages of membership.

RESOLUTION NO. 25

Membership-at-Large

Referred to Committee on Non-Member Physicians.

RESOLUTION NO. 26

Membership Directory

WHEREAS, The matter of publication of the directory was given to a committee; and

WHEREAS, This committee is desirous of making the directory an effective tool for information to the members of the Kansas Medical Society; therefore be it

Resolved, That the directory be published each year and that it contain this additional information over what the 1968 directory shows:

1. Congressional maps, names of senators and congressmen and information regarding how, when, and where they might be contacted.
2. Councilor district map and county medical society map with meeting dates of the societies.
3. Synopsis of Department of Health regulations, Healing Arts, and Coroner's laws.
4. List of committees under commissions.
5. List of specialty society presidents.
6. List of specialty inpatient hospitals.
7. List of poison control centers.
8. List of county or specialty executives and secretaries on the organizational page.
9. Index page.
10. Change the color of the cover to yellow.
11. List of all hospitals in Kansas and their telephone numbers.
12. Other data deemed pertinent.

RESOLUTION NO. 27

Roster

Be It Resolved, That a packet of information, including the Roster as well as other pertinent information to the practice of medicine, should be com-

piled and mailed to all physicians who are newly established in the practice of medicine in Kansas.

RESOLUTION NO. 28

Resolutions

This resolution was not adopted.

RESOLUTION NO. 29

State Meeting Format

This resolution was not adopted.

RESOLUTION NO. 30

Separation of Blue Cross-Blue Shield

Referred to Committee on Blue Shield Study for further review; to be reported to House of Delegates in 1970.

RESOLUTION NO. 31

Catastrophic Liability Coverage

Resolved, That the House of Delegates adopt the Catastrophic Liability coverage as underwritten by the Pacific Employers Insurance Company, a subsidiary of INA and administered by Mr. Ed Gund, Group Plans Agency, Inc.

RESOLUTION NO. 32

Deferred Compensation Plan

WHEREAS, The House of Delegates in 1968 charged the Commission for Sociology and Economics to continue reviewing the deferred compensation plan; and

WHEREAS, This task was assigned to the Insurance Committee; therefore be it

Resolved, That the Kansas Medical Society does hereby adopt the "Kansas Medical Society's Deposit Administration Group Annuity Contract" approved through Great Plains Life of Wichita, Kansas, and the "Kansas Medical Society's Deferred Compensation Contract for all Participating Physicians" as provided by Mr. Murray Hardesty, Tax Attorney, Topeka, Kansas, with "Security Equity" the mutual fund sponsored by Security Benefit Life of Topeka, Kansas, as the primary equity investment media, and

does hereby request Blue Shield to adopt the same, and be it further

Resolved, That the Medical Society by its adoption of the above program is not in any way endorsing this deferred compensation plan, nor guaranteeing nor implying that any physician who participates will obtain any income tax saving or deduction, but is merely making the program available to the large number of qualified physicians in the state of Kansas that would benefit therefrom.

It is understood that the participant, not the Society nor the insurance company, will, under this plan, be responsible for all legal defenses should an IRS litigation result.

RESOLUTION NO. 33

Itinerant Surgery

WHEREAS, Blue Shield has requested guidance from the Kansas Medical Society on the question of itinerant surgery, be it

Resolved, That the following addendum to the Prevailing Charge Policy Statement adopted in Resolution No. 55, May 1968, be adopted by the House of Delegates:

"In cases of itinerant surgery, when the routine part of pre- and postoperative care is provided by a physician other than the surgeon, it is agreed that each physician bill his customary charge for the services he performs and that Blue Shield payment under the Prevailing Charge Plan be the range maximum applicable to the surgical procedure performed, or the sum of the charges, whichever is the lesser amount.

"It is understood that no additional professional charge is to be made to the subscriber by either physician.

"It is also understood that atypical cases are subject to individual consideration."

RESOLUTION NO. 34

Out-of-State Blue Shield Subscribers

WHEREAS, Blue Shield Participating Physicians in Kansas accept the policies and payment principles of the Kansas Blue Shield Prevailing Charge Plan; and

WHEREAS, Other Blue Shield Plans are rapidly developing full service benefit programs; and

WHEREAS, Blue Shield would be strengthened nationally by developing reciprocal arrangements to assure subscribers of all full service Plans predictability of coverage; therefore be it

Resolved, That the Participating Physicians of

Kansas Blue Shield agree to provide services to out-of-state Blue Shield subscribers who are covered by full service programs under the same policies applicable to Kansas subscribers; and be it further

Resolved, That this policy take effect upon approval by the House of Delegates of the Kansas Medical Society, provided appropriate arrangements are made by other Blue Shield Plans to make direct payment to Kansas Participating Physicians.

RESOLUTION NO. 35

Fiscal Intermediary for Title XIX Program

WHEREAS, Kansas Blue Cross-Blue Shield were designated fiscal intermediary for the Title XVIII and XIX programs upon request from their state sponsoring professional associations; and

WHEREAS, Kansas Blue Cross-Blue Shield have sustained a substantial loss in the administration of Title XIX; and

WHEREAS, Both the providers and recipients of health care under Title XIX should benefit from Blue Cross-Blue Shield's continuing experience with this program; therefore be it

Resolved, That the Kansas Medical Society encourage the Board of Directors of Kansas Blue Shield to seek renewal of the Title XIX contract under the following limitations:

1. That the Board of Directors of Kansas Blue Shield have the support of the Kansas Medical Society in being assured that payment for servicing the contract be neither more nor less than audited costs, and

2. That the Kansas Medical Society's Advisory Committee to Welfare use its good offices in assisting Kansas Blue Cross-Blue Shield and the State Board of Social Welfare in reaching early agreement regarding renewal of the contract which expires June 30, 1970.

RESOLUTION NO. 36

Kirke W. Dale

WHEREAS, Mr. Kirke W. Dale, Attorney in Arkansas City, Kansas, during his distinguished service as a senator in the state legislature, constantly worked toward the improvement of standards of health services for the people of Kansas; and

WHEREAS, Mr. Dale as legal counsel to this Society has repeatedly and continuously assisted the Society and its members in innumerable services; therefore be it

Resolved, That this Society express its gratitude to

Mr. Dale and that he be presented the Outstanding Service Award with a plaque on which shall be inscribed:

"The Kansas Medical Society presents this Outstanding Service Award to Kirke W. Dale for his selfless and dedicated legal counsel to this Society, and to the physicians of Kansas, directed toward the continual improvement of health care for the people of this state. May 7, 1969."

RESOLUTION NO. 37

SAMA

WHEREAS, The Kansas Chapter of the Student American Medical Association last summer conducted a project of community service financed by the American Medical Association in an amount of approximately \$40,000; and

WHEREAS, It appears the American Medical Association will again finance this project for this coming summer; and

WHEREAS, There certainly are many facets of this project that are worthwhile, of public service, for which the students participating are to be commended; and

WHEREAS, American Medical Association financial participation came without consultation with the Kansas Medical Society either as to program content or the expenditure of AMA money for a project conducted largely within this state; and

WHEREAS, AMA participation in projects conducted in this state is of interest to the dues paying physicians of Kansas; therefore be it

Resolved, That the Kansas Medical Society be afforded the opportunity of consulting with the American Medical Association and that the Society be invited to participate in an advisory capacity in the operation of such projects prior to financial involvement by the American Medical Association; and be it further

Resolved, That a resolution be prepared and introduced by the Kansas delegates to the American Medical Association House of Delegates to the effect that health service projects to which the American Medical Association contributes financial support should be predicated upon prior consultation with the medical society of the state or states in which such projects are to be conducted.

RESOLUTION NO. 38

(Adopted at First House of Delegates)

Lucien R. Pyle, M.D.

Medical Advisor to Welfare

Be It Resolved, That the House of Delegates of the Kansas Medical Society commends Dr. Lucien R.

Pyle for the tremendous effort he has made in behalf of good medical care in the state of Kansas; and be it further

Resolved, That his work in behalf of the Kansas Medical Society with the Welfare Department in the administration of Title XIX be acclaimed by this House of Delegates.

RESOLUTION NO. 39

Washington National Insurance Co.

WHEREAS, There is an apparent need for renegotiation of a new rate schedule between members of the Kansas Medical Society and Washington National Insurance Company. The loss ratio during 1967 reaching 80 per cent, and 1968, 84 per cent, and recognizing that these figures are far beyond break-even point; and

WHEREAS, The Kansas Medical Society has been previously committed to renegotiation if loss ratio climbed beyond break-even point; therefore be it

Resolved, That the Kansas Medical Society take positive action in promoting negotiations by directing the Insurance Committee to make meaningful adjustment of some type in the plan as is necessary.

RESOLUTION NO. 40

(Adopted at First House of Delegates)

John L. Morgan

WHEREAS, The year 1968-69 has been a year filled with many problems, both old and new as far as the Kansas Medical Society is concerned; and

WHEREAS, The eyes of the public have been repeatedly turned toward the medical profession by news commentators, comedians, columnists, labor organizers, and many others; and

WHEREAS, The word picture as painted is not always complimentary to the image of the medical profession; and

WHEREAS, The complexity of problems which has faced the medical profession in Kansas over the past year has necessitated leadership of the highest order; and

WHEREAS, John Lloyd Morgan, as our President, has conducted the affairs of the Society in the highest tradition, and with dedication and excellence; therefore be it

Resolved, That this House of Delegates by unanimous vote express our profound appreciation to John Lloyd Morgan for a job "well done," and be it further

Resolved, That we request of Dr. Morgan that he continue to give us of the Kansas Medical Society the

benefit of his experience and wise counsel, and be it further

Resolved, That we wish for you, John, more hours to divert to those pleasurable quests of family, dialogue, reading, recreation and fishing.

RESOLUTION NO. 41

Board of Allergy

This resolution was not adopted.

RESOLUTION NO. 42

Use of Credit Cards for Payment of Physicians' Services

Referred to Commission for Sociology and Economics.

RESOLUTION NO. 43

Family Practice Residency

WHEREAS, The American Medical Association has approved the American Board of Family Practice as a new specialty; and

WHEREAS, The state of Kansas is in need of many practitioners of family practice; therefore be it

Resolved, That the dean of the School of Medicine of the University of Kansas be requested to establish a program for the training of physicians in family practice.

RESOLUTION NO. 44

Joint Medical-Legal Committee

WHEREAS, The number of malpractice suits have increased, the value of awards has increased, and consequently, malpractice insurance premiums have risen, further increasing the cost of medical care; therefore be it

Resolved, That the Kansas Medical Society cooperate with the Kansas Bar Association in consideration of the establishment of a Joint Medical-Legal Committee to consider malpractice issues on a voluntary basis, before suits are filed, and that any proposal therefrom be presented to the Kansas Medical Society House of Delegates for approval.

RESOLUTION NO. 45

Tempered Lenses

This resolution was tabled.

RESOLUTION NO. 46

Tempered Lenses Issued by the Armed Forces

This resolution was tabled.

RESOLUTION NO. 47

Health Education

Resolved, That the Kansas Medical Society policy regarding health education in Kansas as set forth in Resolution No. 13 adopted by the House of Delegates May 1, 1968, be altered as follows:

"Consultation with local medical societies should be obtained for program development and selection of teaching materials employed in health education regarding human reproduction."

RESOLUTION NO. 48

Osteopathic Membership

Referred to the Commission for Society Organization.

RESOLUTION NO. 49

Professional Utilization Welfare Advisory Committee

WHEREAS, It is essential to the progress and growth of the Title XIX program to have knowledge of the degree and method of utilization of services; and

WHEREAS, These facts need constant review and study; therefore be it

Resolved, That the Kansas Medical Society direct the Advisory Committee to Welfare to develop in cooperation with the State Utilization Study Committee possible mechanisms for professional utilization study; and be it further

Resolved, That on the approval of the Council, the Committee proceed with institution of these mechanisms on a trial basis; and be it further

Resolved, That the Committee report its progress to the Kansas Medical Society House of Delegates at its next annual meeting.

RESOLUTION NO. 50

Appreciation to Saline County Medical Society

WHEREAS, The 110th Annual Meeting of the Kansas Medical Society has been most successful scientifically and socially; and

WHEREAS, The Saline County Medical Society has provided the committee members who have brought about this convention; and

WHEREAS, The membership has been privileged to enjoy the hospitality of the Salina Country Club; and

WHEREAS, The Statler Hilton Inn has served admirably as a convention site; therefore be it

Resolved, That this Kansas Medical Society express its gratitude to the Saline County Medical Society; and be it further

Resolved, That copies be sent to the Society; to Dr. John C. Mitchell, General Chairman; the president of the Salina Country Club; and the manager of the Statler Hilton Inn.

NEW STATE DIRECTOR OF HEALTH NAMED

Dr. Kenneth Graham, Leavenworth, Vice-president of the State Board of Health, announces the appointment of Dr. Edwin D. Lyman of Omaha as State Director of Health. Dr. Lyman will also be executive secretary of the State Board of Health. He will assume his new duties on July 15.

Dr. Lyman has been Director of the Omaha-Douglas County Department of Health for 20 years. Prior to that, he was associated with the Lincoln-Lancaster Health Department in 1946 and 1947.

A native Nebraskan, Dr. Lyman received his BA and Medical Degrees from the University of Nebraska in 1941 and 1944. His internship was at the Medical College of Virginia at Richmond. He earned his Masters Degree in Public Health from Harvard in 1948 and has passed his boards in Preventive Medicine.

Dr. Lyman is a Fellow in the American Public Health Association and a former president of the U. S. Conference of City Health Officers.

Dr. and Mrs. Lyman has two daughters, Penelope Lyman and Mrs. Candace Margolis, both students at the University of Nebraska. Dr. Lyman's father, Dr. Rufus Lyman, was formerly Dean of the College of Pharmacy at the university.

Dr. Donald Wilcox, state epidemiologist, will continue to serve as Acting Director of Health until Dr. Lyman assumes his new duties in July.

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AMA'S 1969 ANNUAL CONVENTION OFFERS INTERESTING VIEWING, LISTENING

An abundance of valuable information will be presented in a variety of interesting ways to those attending the American Medical Association's 1969 Annual Convention in New York City.

Some information will be available to visitors in the comfort of their convention hotels or motels. This will be through the special televising of convention news, interviews, panels, and scientific presentations.

Much of the scientific activity of the July 13 through 17 Annual Convention will be in the Coliseum and New York Hilton Hotel. The House of Delegates will meet at the Americana Hotel.

In addition to papers and lectures which will be presented in the Coliseum and New York Hilton, there will be exhibits, color closed circuit television, and medical motion pictures. Some 250 to 300 scientific exhibits are expected at the Coliseum including special ones on arthritis, pulmonary function, fresh tissue pathology, fractures, resuscitation, and laboratory medicine. Industrial exhibits also will be on view at the Coliseum.

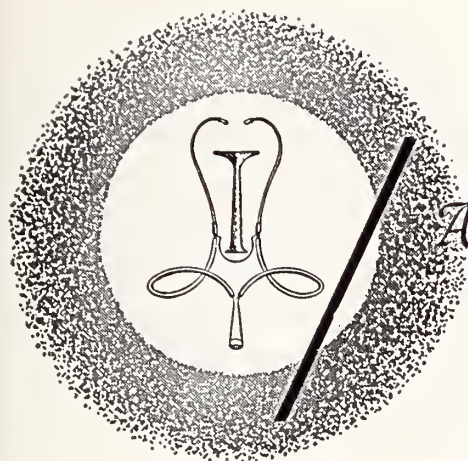
From rooms set aside at the Coliseum, viewers will be able to see closed circuit scientific presentations televised in color from Cornell University Medical Center.

The Coliseum also will be the site of medical film showings, including the premiere showing of some new films.

CHANGE OF ADDRESS

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Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

JUNE

- June 23-26 American Orthopaedic Association, The Homestead, Hot Springs, Virginia. Write Albert B. Ferguson, M.D., 125 DeSoto Street, Pittsburgh 15213.
- June 25-27 21st annual Summer Clinic, Vail, Colorado. For information: Joseph Butterfield, M.D., Denver Children's Hospital, 1056 E. 19th Avenue, Denver 80218.

JULY

- July 13-17 Woman's Auxiliary to the AMA, Waldorf-Astoria, New York. Write: Miss Margaret N. Wolfe, Exec. Secretary, 535 N. Dearborn Street, Chicago 60610.
- July 13-17 118th annual convention, American Medical Association, New York. Write: E. B. Howard, M.D., Acting Exec. Vice President, 535 N. Dearborn Street, Chicago 60610.
- July 14-19 7th International Congress of Clinical Pathology, Montreal, Canada. Write: Box 8, Station "G," Montreal 18, Canada.
- July 18-19 Rocky Mountain Cancer Conference, Brown Palace Hotel, Denver. Write: D. G. Derry, Exec. Secretary, Colorado Medical Society, 1809 E. 18th Avenue, Denver 80218.

AUGUST

- Aug. 10-15 American Congress of Rehabilitation Medicine, Palmer House, Chicago. Contact: Creston C. Herold, Exec. Director, 30 N. Michigan Avenue, Chicago 60602.
- Aug. 18-21 American Hospital Association, International Amphitheatre, Chicago. Contact: Edwin L. Crosby, M.D., 840 N. Lake Shore Drive, Chicago 60611.

- Aug. 21-23 Rocky Mountain Radiological Society, Brown Palace Hotel, Denver. Contact: Robert W. Lackey, M.D., 4200 E. Ninth Street, Denver 80220.

POSTGRADUATE EDUCATION

University of Colorado:

- June 30-July 3 *Ophthalmology* (Colorado Springs)
July 21-25 *Internal Medicine* (Estes Park)
July 31-Aug. 2 *Dermatology* (Aspen)

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Hahnemann Medical College and Hospital, Philadelphia:

- July 14-18 *Interpretation of Cardiac Arrhythmias*
Aug. 11-17 *Space Medicine*

For further information write Hahnemann Medical College and Hospital, 230 N. Broad Street, Philadelphia 19102.

Journal on Microfilm

Microfilmed copies of current as well as all back issues of the JOURNAL are available through University Microfilm Services, a subsidiary of Xerox Corporation. The 35 mm film fits all standard viewers and provides the JOURNAL in miniature at a savings on binding and storage costs. Write for information or send orders direct to University Microfilm Services, 300 North Zeeb Road, Ann Arbor, Michigan 48106.



PRACTICAL AUTOMATION FOR THE CLINICAL LABORATORY, by Wilma L. White, Marilyn M. Erickson, and Sue C. Stevens. C. V. Mosby Company, St. Louis, 1968. 401 pages illustrated. \$14.50.

No modern clinical laboratory, of any size, can remain unaffected in some degree by automated technology. Many of us have struggled tearfully with instruments which, when they perform well are irreplaceable, but which merit all of the words of condemnation at our disposal when they break down.

Until the present, there has been no single volume with source material which enabled the distressed laboratorian to work his way through a problem with a variety of incapacitated instruments. White, Erickson and Stevens in their new book, *Practical Automation for the Laboratory* have tackled this task. Many problems in automation can be traced to a failure in proper maintenance and lack of continual, systematic inspections. This volume attempts to present a basic mechanical and practical approach to the use of automated equipment in the laboratory. The first two chapters deal in a basic fashion with basic mechanics and electronics and equipment maintenance. Consideration is given to the elementary building blocks of advanced technology such as cams, gears, fuses and switches.

Although a variety of sophisticated systems for performance of repetitive laboratory tests and their incorporation into mass screening programs are covered, the greatest emphasis is placed on the Technicon systems. Both the SMA-12/30 and SMA-12/60 models of multichannel sequential analyzers are covered, but the most detailed operating information is reserved for the basic models of autoanalyzers.

A comprehensive overview of the operation of sev-

eral systems is available through these chapters but the book is not intended to replace either the very valuable training offered by the manufacturers or their field manuals.

As the authors point out in their last chapter there is a proper instrument for the individual needs of every laboratory. This volume may assist in that selection.—*L.W.H.*

MEDICAL PHYSIOLOGY, 12th edition (2 volumes), edited by Vernon B. Mountcastle, C. V. Mosby Company, St. Louis, 1968. 1858 pages illustrated. \$24.00.

This is a book review of the two volumes entitled *Medical Physiology*. There are several real outstanding features about these two texts which one frequently does not find in medical physiology books. The first volume deals entirely with the physiological functions of the organ systems. The authors are excellent and the work is very well organized in short chapters with very appropriate and helpful headings. The material is easy to read and serves as a very ready reference to many medical problems that may arise in medical practice. The information is very complete but not voluminous and reads very easily. The second volume deals primarily with the central nervous system and some basic physiology involving nerves and muscles. Although this volume is perhaps not as useful to the practicing physician; nevertheless, it is written with the same clarity and organization as the first volume, and the information presented is very pertinent. In each volume there are exhaustive bibliographies at the end of each chapter.

I would recommend these two volumes as a part of the library of any physician or medical student.—*A.V.M.*



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Anti-poverty programs. Robinson O. Everett, editor. Dobbs Ferry, New York, Oceana Publications, 1966.

Bannasch, Peter. The cytoplasm of hepatocytes during carcinogenesis . . . New York, Springer-Verlag, 1968.

Bargen, Jacob Arnold. Chronic ulcerative colitis. Springfield, Thomas, 1969.

Borgatta, Edgar F. Smoking, health, and behavior. Chicago, Aline, 1968.

Butter, Charles M. Neuropsychology: the study of brain and behavior. Belmont, Calif., Brooks/Cole Pub. Co., 1968.

Convocation on Medicine and Theology, Rochester, Minn. 1967. Dialogue in medicine and theology. Nashville, Abingdon, 1968.

Cooper, Louis Z. The rubella problem. Chicago, Year Book, 1969.

Dally, Peter. Chemotherapy of psychiatric disorders. New York, Plenum Press, 1967.

Drug dependence; a guide for physicians. Chicago, American Medical Association, 1969.

Ficarra, Bernard Joseph. Surgical and allied malpractice. Springfield, Ill., Thomas, 1968.

Fowler, Noble Owen. Cardiac diagnosis. New York, Hoeber, 1968.

Gardner, Riley W. Personality development at pre-adolescence. Seattle, University of Washington Press, 1968.

Geist, Harold. The psychological aspects of the aging process. St. Louis, W. H. Green, 1968.

Graham, Milton D. Multiply-impaired blind children. New York, American Foundation for the Blind, 1968.

Greenfield, Margaret. Medicare and Medicaid. Berkeley, Institutes of Governmental Studies, University of California, 1968.

Hanlon, John J. Principles of public health administration. 5th ed. St. Louis, Mosby, 1969.

Licht, Sidney Herman. Rehabilitation and medicine. Sidney Licht, assisted by Herman L. Kamenetz. New Haven, Conn., Licht, 1968.

Long, Rowland H. The physician and the law. 3d ed. New York, Appleton-Century-Crofts, 1968.

Pierce, William J. Give me life . . . Bruceville, Ind., DorNic Publishers, 1968.

Rodman, Theodore. Pulmonary emphysema and related lung diseases. St. Louis, Mosby, 1969.

Rodin, Ernst A. The prognosis of patients with epilepsy. Springfield, Thomas, 1968.

Symposium on Comprehensive Mental Health, University of Wisconsin, 1966. Madison, University of Wisconsin Press, 1968.

Watson, William L. Lung cancer. St. Louis, Mosby, 1968.

Yu, Paul N. Pulmonary blood volume in health and disease. Philadelphia, Lea & Febiger, 1969.

Zabarenko, Lucy. Primary medical practice. St. Louis, W. H. Green, 1968.

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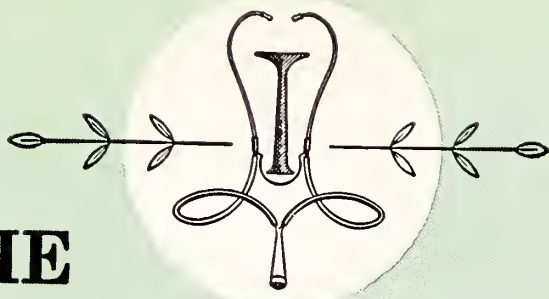
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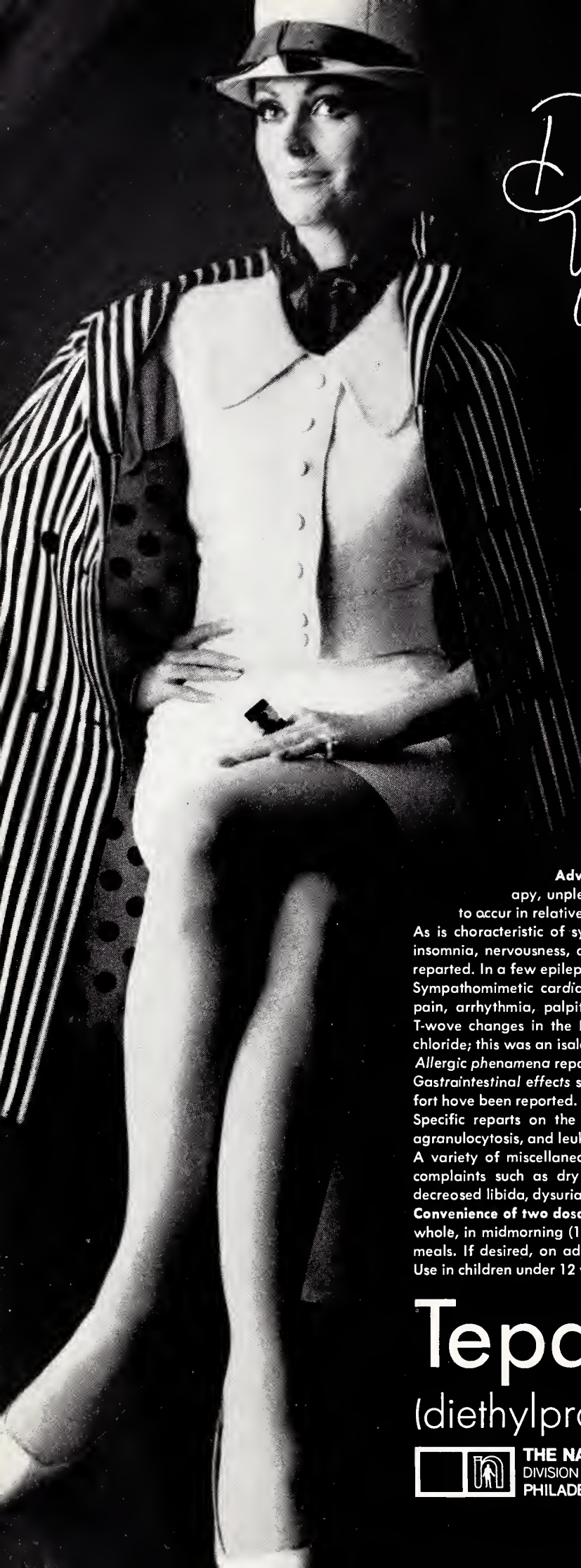
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Lactinex has been shown to be useful in the treatment of gastrointestinal disturbances, and for relieving the painful oral lesions of fever blisters and canker sores of herpetic origin.^{1,2,3,4,5,6,7,8}

No untoward side effects have been reported to date.

Literature on indications and dosage available on request.

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References:

- (1) Siver, R. H.: CMD, 21:109, September 1954. (2) Frykman, H. H.: Minn. Med., 38:19-27, January 1955. (3) McGivney, J.: Tex. State Jour. Med., 51:16-18, January 1955. (4) Quehl, T. M.: Jour. of Florida Acad. Gen. Prac., 15:15-16, October 1965. (5) Weekes, D. J.: N.Y. State Jour. Med., 58:2672-2673, August 1958. (6) Weekes, D. J.: EENT Digest, 25:47-59, December 1963. (7) Abbott, P. L.: Jour. Oral Surg., Anes., & Hosp. Dental Serv., 310-312, July 1961. (8) Rapoport, L. and Levine, W. I.: Oral Surg., Oral Med. & Oral Path., 20:591-593, November 1965.

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Subdural-Pleural Shunt

Treatment for Chronic Subdural Hematoma in Infancy

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Introduction

SUBDURAL HEMATOMAS ARE common in infancy. Accepted modes of therapy include needle aspiration of the subdural space, craniotomy with membrane stripping, and shunting procedures such as subdural-peritoneal shunts.

Subdural-pleural shunts have also been described as treatment for chronic subdural hematomas in infants.¹⁻³ Because of the relative lack of information on this subject the 12 cases done at the University of Kansas Medical Center between 1958 and 1968 are reviewed with attention to the complications encountered.

Technique and Case Reports

Failure of repeated needle aspirations of the subdural space to cure subdural hematomas constituted the major indication for surgery. The patients treated by shunting were arbitrarily selected by the attending surgeon. General anesthesia was used. A parietal burr hole was placed over the hematoma, the dura incised, and a number 8 to 12 Robinson rubber catheter inserted into the hematoma a distance of 3-6 centimeters. Care was taken to avoid excessive removal of hematoma fluid. The catheter was sutured in place

with 3-0 silk and tunneled subcutaneously along the posterior thoracic wall to the fourth or fifth intercostal space. The pleura was identified, incised, and the catheter placed in the chest a distance of 4-10

Subdural-pleural shunting is an accepted mode of therapy for chronic subdural hematomas in infancy. The operation, its indications, complications, and results are discussed. Failure of repeated needle aspirations of the subdural space constitutes the major indication for surgery. Subdural-pleural shunts are associated with a significant rate of complications, some potentially serious, and most avoidable. The long term results appear to be satisfactory.

centimeters and anchored to the chest wall with 3-0 silk. Following clinical improvement and negative subdural taps, the shunt was electively removed.

The pertinent data are presented in *Table 1*. It can be seen that:

1. All but two patients were under one year of age.
2. There were nine males and three females.
3. All patients presented with symptoms or signs

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TABLE 1

Case	Age (Months)	Sex	Clinical Data on Admission	Number of Taps and Total Fluid Removed (cc.)	Operative Data	Complications	Clinical Data at Time of Most Recent Evaluation
1	19	F	No history of trauma. Retarded development, could neither sit nor hold head up, enlarging head, vomiting and lethargy. Dehydrated. Blind, with optic atrophy. Bilateral VI nerve paresis. Rt. parietal skull fracture. Bilateral hematomas. Adrenogenital syndrome, salt losing variety. Head circumference 46.5 cm. > 50 percentile.	12 300	Thin membranes present. Shunt removed 4 mos. p.o.	Shunt was not sutured and came out of chest 2 wks. p.o. Revision required.	Child can see, no optic atrophy, still retarded but with significant improvement 2 years p.o. Head circumference—mean for age.
2	5	M	Fell from sofa 3 wks. PTA. Enlarged head, vomiting, lethargy and failure to thrive. Bulging fontanel, separated sutures, cracked pot sound, and hyperreflexia. Emaciated. Rt. parietal skull fracture. Bilateral hematomas. Congenital heart disease with interventricular septal defect. Head circumference 44.5 cm. > 97 percentile.	10 415	? Membranes. Shunt removed 2 mos. p.o.	None.	Normal 2 years p.o. Head circumference—mean for age.
3	12	M	Vomiting, enlarging head. Blind, left VI nerve paresis, bulging fontanel, separated sutures, cracked pot sound, hyperreflexia. Lt. parietal skull fracture. Bilateral hematomas. Positive subdural aerogram. Six wks. prior to shunt had bilateral craniotomies, with membrane stripping. The brain was depressed 5 cm. bilaterally. Head circumference 54 cm. > 97 percentile.	9 875	Bilateral thick membranes. Shunt never removed.	None.	Head circumference decreased in size with bony overlap. 15 mos. p.o., improved but retarded in that he can sit up and attempted to stand, residual cortical blindness and optic atrophy. Does not speak. Seizures controlled with medication. Psychological testing showed developmental accomplishments not much in excess of 6 mos. of age. He was placed in an institution.
4	4	M	Delivered by c-section, enlarging head. Bulging fontanel, separated sutures. Bilateral hematomas. Abnormal EEG. Positive subdural aerogram. Head circumference 49.5 cm. > 97 percentile.	1 50	? Membranes. Bilateral drainage using T-tube to right chest. Shunt removed	Antibiotic used for suspected lower lobe pneumonia. However, cultures were negative. Mild hydrothorax	Normal 2 years p.o. Head circumference 54 cm. > 97 percentile.

6	2	M	No history of trauma. FTSD. Vomiting, enlarging head. Bulging fontanel. Bilateral hematomas. Positive subdural aerogram. Head circumference 45 cm. > 97 percentile.	200	Shunt removed 2 mos. p.o.	Shunt plugged with granulation tissue 2 wks. p.o. Revision required.	Normal 2 mos. p.o. Head circumference 48 cm. > 97 percentile.
7	5	M	Premature, forceps delivery, mild retarded development, couldn't hold head up, enlarging head. Bulging fontanel, separated sutures, cracked pot sound. Bilateral hematomas. Positive subdural aerogram. Head circumference 47 cm. > 97 percentile.	9 200	Membranes present. Shunt removed 3½ months p.o.	Shunt was sutured but came out of chest 6 days p.o. Left frontotemporoparietal craniotomy with stripping of membranes and evacuation of clot required. None.	Normal 16 mos. p.o. Head circumference 47.2 cm. (mean for age).
8	3	M	Fell from sofa 7 wks. PTA. Seizures, irritable, lethargic, enlarging head. Bulging fontanel. Bilateral hematomas. Lt. frontotemporoparietal skull fx. Positive brain scan. Echogram showed 3 mm. left-to-right shift. Head circumference 42 cm. > 97 percentile.	9 67	Thick membranes present. Shunt removed 4 mos. p.o.	Transitory mild hydrothorax cleared spontaneously.	Normal 6 mos. p.o. Head circumference 6 mos. p.o. 43.5 cm. (mean for age). 2 years p.o. had retarded development. He crawled at 1 year and walked at 20 months. Poor balance. Hyperactive with generalized spasticity and a limited vocabulary. He was in the 50th percentile in both height and weight.
9	5	M	Dropped on head and hit concrete 3 wks. PTA. Vomiting, enlarging head, irritable. Paresis of upward gaze, bulging fontanel, separated sutures. Unilateral hematoma. Hemolytic disease of newborn. Positive brain scan. Positive pneumoencephalogram. Head circumference 45 cm. > 97 percentile.	8 78	?Membranes. Shunt removed 1 month p.o.	Transitory mild pneumothorax at the time of shunt removal cleared spontaneously. It was assumed that the catheter had stuck to the visceral pleura.	Normal 20 months p.o. except for mild speech difficulty. His father had a similar problem as a child.
10	3	F	Fell from bed 1 wk. PTA. Seizures, lethargy, vomiting, enlarging head. Bulging fontanel, separated sutures, respiratory arrest x 2, 12 hours PTA. Unilateral hematoma. Positive pneumoencephalogram. Head circumference 43 cm. > 97 percentile.	13 508	Thin membranes present. Shunt removed 4 months p.o.	Shunt was inadequately sutured and came out of chest 1 wk. p.o. Revision required.	Normal 4 months p.o. Head circumference 44.5 cm. (mean for age).

(Continued on next page)

TABLE 1 (Continued)

Case	Age (Months)	Sex	Clinical Data on Admission	Number of Taps and Total Fluid Removed (cc.)	Operative Data	Complications	Clinical Data at Time of Most Recent Evaluation
11	2	M	No history of trauma. Seizures, vomiting, enlarging head. Bulging fontanel, separated sutures, high-pitched cry. Bilateral hematomas. Positive brain scan. Bilateral trephinations done 2 wks. prior to subdural-pleural shunt without clinical improvement. Head circumference 43 cm. > 97 percentile.	13 437	Thin membranes present. Shunt removed 3 months p.o.	None.	Normal 19 months p.o. Head circumference 49 cm. (mean for age).
12	7	M	No history of trauma. Vomiting, mild retarded development, poor attempts to crawl and poor balance. Bulging fontanel. ?Enlarging head. Bilateral hematomas. Head circumference 43.5 cm. > 40 percentile.	11 200	No membranes present. Shunts removed 2 months p.o.	Initial shunt placed in left chest and loosely sutured. Shunt came out of chest 10 days p.o. The shunt was removed and a right side shunt done. Two mos. later a left side shunt done (no communication between right and left side). Thoracentesis required for left hemothorax. Antibiotics used for right upper lobe pneumonia.	Normal 5 months p.o. Head circumference 47.5 cm. (mean for age).

of increased intracranial pressure and enlarging heads. Ten were above the 97th percentile in size.

4. Ten patients had eight or more subdural taps, and nine patients had at least 200 cubic centimeters total hematoma fluid removed with subdural taps.

5. At the time of shunting, ten patients had bilateral hematomas.

6. Four patients had hydrothorax, four had the shunt come out of the chest, two had pneumonia, one had pneumothorax, one had the shunt tube plugged with granulation tissue, and one had failure of one shunt to drain both sides. Four shunt revisions and one craniotomy were required.

7. Ten shunts were removed within four months. One shunt was removed at the time of craniotomy and one shunt was never removed.

8. Follow-up chest examination including chest roentgenograms were all normal.

9. There were no wound infections and no deaths.

10. When most recently seen, nine patients appeared essentially normal and three were improved, as judged by physical and neurological examination and clinical estimate of development consistent with the chronological age.⁴ Formal psychological testing was not done routinely.

Discussion

All of our patients presented with enlarging heads and large amounts of fluid were removed by repeated subdural taps without significantly altering the condition. A situation exists therefore, in which there is a craniocerebral disproportion with the skull being too large for the brain. It seems unlikely that the brain will expand over its normal size in a short period of time, thus obliterating the subdural cavity. The shunt tube allows for stabilization of the relationship between cranial vault and the growing brain. Over the ensuing weeks in the malleable infant's head, the skull can reduce in size and the brain will grow with gradual obliteration of the subdural space. Once the subdural space has been obliterated Collins has shown that there is marked regression in membrane thickness, cellularity, and vascularity.⁵ Good results of subdural drainage have cast doubt that the thin, viable, inner membrane restricts brain expansion and results in mental retardation.^{1-3, 5-8} Shunting procedures appear to be particularly adapted to hematomas with thin membranes.

The advantages of internal subdural drainage without membrane stripping include: simplicity of technique with short anesthesia time, no dead space is left, there is no excessive protein loss, and the potentiality for infection is low. The subdural spaces ordinarily communicate from one side to the other under the falx cerebri, and bilateral hematomas usually can be satisfactorily drained by a unilateral

shunt. However, as the craniocerebral disproportion decreases the communication may not remain open and a T-tube may be advantageous. Late complications are minimal and the long term results appear quite satisfactory.

In reviewing the complications of the present series it would seem that better suturing of the catheter to the chest wall with adequate length in the chest would have prevented the four instances of shunt migration out of the chest. In these four cases, three catheters were loosely or inadequately sutured and one was not sutured to the chest wall. In addition, tunneling the shunt tube across the neck and placing it in the anterior chest at the third or fourth interspace may avoid shunt migration due to motion of the scapula.⁹ Of the four cases of hydrothorax, three were of no clinical significance and cleared spontaneously, while one case did require thoracentesis. The two cases of pneumonia occurred on the same side as the shunt. The case of pneumothorax cleared spontaneously and was of no clinical significance. The shunt tube plugged with granulation tissue and the failure of one shunt to drain both sides required subsequent operations.

The major objection to shunting procedures is the possible retention of subdural membranes with restriction of brain growth and mental retardation. There has been considerable disagreement in this regard though most agree that chronic hematomas with thick, inelastic membranes usually require craniotomy and membrane stripping.¹⁰ Since trephination with opening of the dura must be done to insert the cerebral portion of the shunting tube, there is a possibility that a large amount of subdural fluid could be drained off with the patient's improvement due to this rather than the actual shunting procedure. In this series care was taken to prevent the escape of excessive fluid at the time of surgery because of concern about the existing craniocerebral disproportion and too rapid decompression of the brain with resultant brain stem decompensation or bony overlap with craniostenosis. For these same reasons no routine attempt was made to treat these infants, as we do adults, by simple drainage through a trephine opening. Subdural taps in the immediate postoperative period showed hematoma fluid still present, but repeated taps prior to shunt removal were negative. Other criticisms include the complication rate and the usual practice of a second operation to remove the shunt. Meticulous attention to detail can significantly reduce the former and the latter is an elective procedure.

Regardless of the operation used to treat chronic subdural hematomas it must be remembered that it can remove the hematoma but will not necessarily

(Continued on page 330)

Survival Against Odds

A Case Report

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A YOUNG MOTHER, severely sensitized to the Rh factor, unexpectedly became pregnant despite a previous tubal ligation, and delivered an exceedingly severely affected infant. Overcoming many obstacles the fetus was born alive and survived, in spite of great difficulty in the neonatal period.

The patient was a 27-year-old female, Gravida 7, Para 5, Ab 1 with one living child. Her last menstrual period was November 11, 1967, making the EDC August 18, 1968. The patient's obstetrical history was miserable:

Year	Outcome	Approximate Gestation
1959	First pregnancy terminated in the live birth of a male, now living and well—her only child	Term
1960	Fetal death in utero	38 weeks
1961	Spontaneous Abortion	First trimester
1962	Fetal death in utero	32-34 weeks
1965	Fetal death in utero	36 weeks
1966	Referred to obstetrician who performed amniocentesis. At this time the deflection at 450 mu was 0.214	21 weeks
	Repeated reading was 0.223	23 weeks
	Fetal heart tones were lost	26 weeks
	Cesarean section, delivery of a macerated deadborn and tubal ligation—type unknown	30 weeks

The patient reported to her family physician in February 1968, at which time pregnancy was diagnosed. Again she was referred to an obstetrician, who performed an amniocentesis on April 12. The deflection at 450 mu was 0.405, and immediately she was referred to the University of Kansas Medical Center. Her blood group was A, Rh negative, with anti-D and anti-C antibodies present. The anti-D titer in albumin was 1/16 and the indirect Coombs' was 1/512.

On April 28 additional amniotic fluid was obtained and 30 cubic centimeters of a 50 per cent solution of barium sulfate was placed in the amniotic cavity. The Δ OD 450 in our laboratory was 0.418. Amniography following the injection of barium

showed a normal scalp line and fetal swallowing of amniotic fluid as indicated by barium in the gastrointestinal tract. On April 30, 1968, at 24 weeks of gestation, an intrauterine fetal transfusion of 60 cubic centimeters of O-negative packed red cells was performed without difficulty (*Figures 1 and 2*). She was dismissed on May 1, 1968. Nine days later, the patient again was admitted, now at 25½ weeks of gestation, and another intrauterine transfusion was performed, delivering 70 cubic centimeters of O-negative packed cells. Convalescence was uneventful and she was discharged the following day.

The procedure was repeated as follows:

Date	Weeks Gestation	Amount of Packed Cells Transfused
5-18-68	27	80 cc
6- 1-68	29	95 cc
6-15-68	31	100 cc
6-29-68	33	130 cc

She was dismissed in good condition on June 30, following the sixth transfusion.

On the evening of July 1, she experienced rather severe abdominal pain. There was no vaginal bleeding, but the pain was unremitting, and she soon developed some rhythmic contractile activity superimposed on a rather constant diffused low abdominal pain.

The patient and her husband immediately set out by automobile to the Medical Center. Their anxiety was heightened when a tire blew out. The spare also was flat, so they had to ride on the flat to the nearest town, where a new tire was purchased and mounted. In spite of this delay, the 277 mile trip was made in four hours, probably a record in itself!

She was admitted to the delivery unit at 12:45 a.m. on July 2, 1968. At this time her cervix would admit one finger, the membranes were intact, and she was having a few, very mild contractions; although there was an increase in uterine tone. Preparations for immediate cesarean section were made and the patient was observed until 7:00 a.m. At this time the uterus seemed to increase in tone and the fetal heart tones first faded, and then were lost by the examiner. Because of her previous cesarean section, the increase in tone of the uterus, and the lack of labor, an immediate cesarean section was performed

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Figure 1

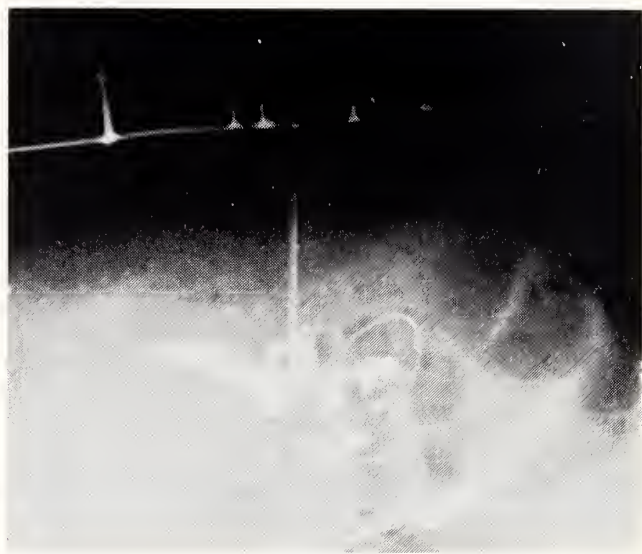


Figure 2

under balanced pentothal—nitrous anesthetic. At the time of cesarean section it was noted that approximately 25 per cent of the placenta had separated.

Delivery of a 2044 gram viable male infant was accomplished without difficulty. Respiration was spontaneous, and the one minute Apgar was four. A total hysterectomy was performed and the mother's recovery was unremarkable. She left the hospital on the eighth postoperative day.

The infant was jaundiced at birth. He had hepatosplenomegaly but no cyanosis, and the color, save for the jaundice, was good. The cord hemoglobin was 17.4 grams per cent with a cord bilirubin of 8.6 milligrams per cent, the direct measuring 0.7 milligrams per cent. The child was typed as O-negative with a negative Coombs' test, the amount of adult red cells approximating 100 per cent. Over the next three days the infant received seven exchange transfusions, all done for hyperbilirubinemia. The highest the bilirubin reached was 27.5 milligrams per cent with a direct of 1.9 milligrams per cent prior to exchange number six. On July 6, July 12

and August 8 simple transfusions of packed cells for anemia were carried out without incident. After reaching a low weight of 1792 grams on the third day of life, the baby was discharged on August 10, 1968, at 39 days of age, in good condition and weighing 2635 grams. Approximately one week later the baby required one more transfusion of packed cells for anemia but maintained a satisfactory hemoglobin thereafter. On September 25, 1968, at nearly three months of life, he weighed 10 pounds three ounces and was developing normally in every respect.

In summary, this child survived a pre-conception tubal ligation, massive antibody transfer from a mother severely sensitized to his Rh factor, six intra-uterine transfusions, the first one commencing at 24 weeks of gestation, a partial abruptio placentae, a wild automobile ride from Western Kansas, fetal distress and an emergency cesarean section, seven exchange transfusions and four supplemental simple transfusions for anemia. The result is a normal child. This was indeed survival against the odds.

CHANGES OF ADDRESS

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IT IS NOW SIX YEARS since the introduction of cardioversion as a method for terminating arrhythmias. To date many thousands of patients have been successfully treated. This extensive experience provides an adequate basis for assessing the advantages and limitations of cardioversion. Ectopic tachycardias in the past have been controlled by means of drugs. The use of antiarrhythmic agents, however, presents a number of limitations. To reach an effective dose requires a time consuming biologic titration involving frequent if not continuous monitoring of patients. However, whatever the precautions, serious side effects frequently occur. Furthermore, all antiarrhythmic drugs when given rapidly or in large doses or when administered intravenously, depress myocardial contractility and reduce peripheral resistance. This may prove especially dangerous in the presence of an arrhythmia which already has compromised cardiac reserve.

Method and Rationale

The majority of human tachyarrhythmias are self-sustaining by virtue of recirculation of an excitable stimulus over a fixed or variable pathway. When the pathway is blocked, the ectopic mechanism is extinguished and the sinus node resumes its usual role as dominant pacemaker. Such block can be induced by an electrical pulse which depolarizes the entire heart and thereby abolishes momentarily all excitable activity. The hazard of electrical shock, namely, cardiac asystole and ventricular fibrillation, can be prevented by the use of brief direct current (DC) pulses and by discharging these pulses into a safe part of the cardiac cycle. The dangerous part of the cycle is the vulnerable period occurring at the time of inscription of the apex of the T wave. Electrical energy triggered into the heart during the vulnerable period results in ventricular fibrillation. Transthoracic DC shocks synchronized to discharge outside the T wave are both effective and safe for terminating a diversity of arrhythmias.

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The Technique of Cardioversion

Since the most common disorder treated with cardioversion is chronic atrial fibrillation, the steps to be described apply especially to this arrhythmia. However, the same procedure with but slight modification is applicable to other ectopic mechanisms. In the case of elective reversion, the patient is started one to two days before the procedure on maintenance quinidine therapy in a dose of 0.3 gm (5 gr) 6 hourly. The objective of administering quinidine is four-fold; (1) to develop adequate serum and tissue levels in order to prevent prompt recurrence of the arrhythmia; (2) to determine whether quinidine is well tolerated; (3) to obtain a small dividend of reversions observed in about 10 per cent of patients with chronic atrial fibrillation while on maintenance quinidine therapy; and (4) to diminish the incidence of ectopic mechanisms immediately following cardioversion. One hour before the procedure 0.1 gm pentobarbital sodium (Nembutal®) is given orally. Transient amnesia is achieved by use of diazepam (Valium®) given in a dose of 2.5 mg intravenously and repeated at two minute intervals until mild anesthesia. This drug is well tolerated and generally about 10 to 15 mg suffices for the desired effect. The two electrode paddles are coated with liberal layers of conductive paste and applied in a front-back orientation. The anterior paddle is held with pressure on the mid sternum while the patient lies on the posterior paddle which is located in the left infrascapular region.

Perhaps the most important aspect of the procedure is to begin with low energy settings of 1 to 5 watt seconds (WS) and then proceed with higher energies such as 25, 50, 100, 200, 300, up to 400 WS. The practice of energy titration protects against serious complicating arrhythmias. For example, if electric shock provokes ectopic beats at low energies before reversion is achieved, one has the option of postponing the procedure or else administering lidocaine in a bolus of 50 mg intravenously. If such titration is carried out, it is not necessary to discontinue digitalis drugs prior to cardioversion. The reversion itself takes but a fraction of a second and the patient is usually awake within a few minutes. When

a normal mechanism is restored blood pressure generally rises. There is no need to monitor the patient for a period longer than one hour if the procedure is uncomplicated.

Selection of Patients

How are patients to be selected for cardioversion? Two questions need to be answered: (1) is the arrhythmia susceptible to electrical reversion? and (2) will a normal mechanism be maintained for a sufficiently long time? Cardioversion has no place in the treatment of brief paroxysmal arrhythmias, recurring ectopic beats or deranged atrioventricular or intra-ventricular conduction. It is without effect when the mechanism is sinus tachycardia, a reflex physiological acceleration of the normal pacemaker which does not yield to antiarrhythmic measures. Digitalis induced rhythm disorders similarly are impervious to cardioversion. Furthermore, in the presence of digitalis toxic arrhythmias, more serious and even fatal disorders of the heart beat may result.

A number of patients are poor candidates for cardioversion because though sinus rhythm can be established it cannot be maintained. When quinidine is not tolerated and adverse reactions follow procaine amide, a normal rhythm will not persist. Patients with rheumatic heart disease who have been in continuous atrial fibrillation for more than two years or those with advanced degrees of mitral regurgitation who display a giant left atrium are unlikely to remain in sinus rhythm long enough to justify cardioversion. The elderly asymptomatic patient with coronary artery disease and atrial fibrillation who exhibits a slow ventricular rate prior to digitalization is an unsuitable subject. Patients who have recurrent paroxysm of diverse atrial arrhythmias should not be reverted once they develop atrial fibrillation. They are less symptomatic with atrial fibrillation than when in sinus rhythm punctuated by frequent paroxysms of tachycardia. Patients should not be reverted before, during, or immediately after valvular operations. It is preferable to wait for ten or more days after surgery since sinus rhythm is then more likely to be long lasting.

Overall Results

To date at the Peter Bent Brigham Hospital 900 patients have been reverted by means of cardioversion. Chronic atrial fibrillation accounted for 650 of these episodes; 150 had atrial flutter and the remaining 100 had either ventricular tachycardia or varying supraventricular mechanisms. The overall success rate was 95 per cent. These results are the more impressive, since the arrhythmia in many of these patients had proved refractory to large doses of antiarrhyth-

mic drugs. More than 2,000 electrical shocks were employed; yet, there was not a single episode of prolonged cardiac asystole and but one episode of ventricular fibrillation due to a failure to synchronize the shock. Although many of the patients were in critical condition and a number had sustained acute myocardial infarction and were in far advanced stages of congestive heart failure, none died as a result of cardioversion. Serious immediate complications were limited to ten episodes of ventricular tachycardia. These were of brief duration and readily controlled. Eight of the patients suffered systemic thromboembolic complications within one to eight days following cardioversion.

Specific Rhythm Disorders

Atrial fibrillation is the most common chronic disorder of the heart beat. One is no longer justified in using quinidine for reversion of this disorder. With quinidine, even when given in large doses, only 50 per cent of patients are restored to sinus rhythm; however, 30 per cent experience significant toxic reactions and 1 to 2 per cent may die from the drug. With cardioversion, atrial fibrillation can be terminated in more than 90 per cent with an incidence of complications not exceeding one per cent.

Immediately after the cardioversion discharge, there may be transitional mechanisms consisting of nodal rhythm, a shifting pacemaker, and ectopic atrial beats. These are observed in about 50 per cent of patients and continue for 30 to 60 seconds until the sinus node "warms up." With restoration of sinus rhythm, the ventricular rate is slowed. The PR interval is generally full and not infrequently first degree heart block is present. The overall hemodynamic state is improved with a rise in cardiac output by about 30 per cent. The most salutary effects are observed in patients who are afflicted with mitral and aortic valvular insufficiency. Maintenance quinidine therapy has to be continued in an adequate dose of at least 1.2 gm daily which results in blood level of about 3 mg per litre. Even with this dose of quinidine, atrial fibrillation will recur within six months in 50 per cent of patients.

Atrial flutter is best treated with cardioversion. It is the easiest disorder to terminate electrically. The arrhythmia generally responds to single low energy shock of as little as 1 to 5 WS. No serious complications have been encountered.

Supraventricular tachycardias often present complex diagnostic and therapeutic problems. Frequently, it is difficult to define the mechanism precisely whether it is of atrial or nodal origin. More important is to determine whether digitalis glycosides are responsible for the disordered rhythm. If the ar-

rhythmia is due to digitalis intoxication, electrical shock may provoke lethal disorders of the heart beat. When, however, small energies are employed and lidocaine is used to abolish ventricular ectopic beats, the supraventricular arrhythmias can be safely treated with cardioversion. The success rate, however, is only 70 per cent.

Ventricular tachycardia responds well to antiarrhythmic drugs such as procaine amide and lidocaine and these constitute the preferred therapy. When the arrhythmia, however, is accompanied by significant hypotension, or the patient is in pulmonary edema, or the tachycardia has developed in the wake of acute myocardial infarction and does not yield immediately to a bolus injection of lidocaine, cardioversion should be employed properly.

Complications

The major complication following cardioversion of chronic atrial fibrillation is systemic or pulmonary embolism. This occurs in 1 per cent of patients who have not received anticoagulant drugs. If the reversion is elective and the underlying disease is rheumatic valvular, pretreatment with anticoagulants for two to three weeks is indicated. Aside from thromboembolism, atrial and ventricular arrhythmias may complicate the cardioversion procedure. The atrial mechanisms generally are of three types: (1) delayed warm up of the sinus node manifested by sinus bradycardia, nodal rhythm or escape beats—the so-called “somnolent sinus node syndrome,” (2) increased atrial automaticity demonstrated by single or multiple atrial premature beats at times associated with brief salvos of tachycardia and (3) “sick sinus node syndrome,” a defect in the elaboration or conduction of the sinus impulse characterized by chaotic atrial activity and usually followed by prompt reestablishment of atrial fibrillation.

The ventricular arrhythmias complicating cardioversion are less common but more threatening than the atrial disorders. These are of two types: ventricular fibrillation, which occurs immediately after delivery of the shock and usually is the result of improper synchronization; the second type develops after several beats or within a few minutes and consists of bigeminy or multifocal ventricular ectopic beats which may result in ventricular tachycardia or rarely in ventricular fibrillation. These later arrhythmias are generally associated with excessive digitalis. Lidocaine, in one or more injections of 50 mg intravenously, is promptly effective.

Conclusion

The method of cardioversion is simple and direct. The physician can observe the entire process of reversion. It does not require a great investment of

physician or patient time and is applicable to diverse arrhythmias. Differentiation between ectopic disorders, essential in the use of drugs, ceases to be a critical requisite for effective therapy.

Cardioversion is not accompanied by significant occurrence of serious complications. There is no depression of contractility, conductivity or excitability of the heart—a common sequel after large doses of antiarrhythmic drugs. The method of cardioversion can be readily mastered by the general physician.

Subdural-Pleural Shunt

(Continued from page 325)

correct intrinsic brain damage. Subdural-pleural shunting does not replace other operations such as craniotomy with membrane stripping or subdural-peritoneal shunting but it does supplement these currently used methods of managing chronic subdural hematomas in infancy.

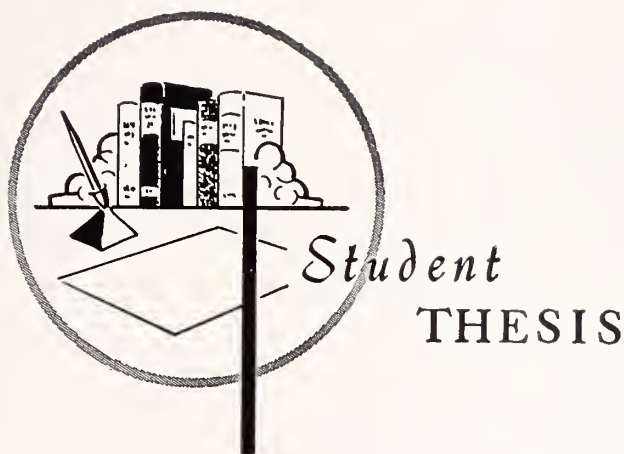
Summary

Subdural-pleural shunts are associated with a significant rate of complications, some potentially serious, and most avoidable. The operation, its indications, complications, and results have been discussed. Subdural-pleural shunting for chronic subdural hematoma appears to be an acceptable form of treatment when meticulous attention to detail is followed.

References

1. Ransohoff, J.: Chronic subdural hematoma treated by subdural-pleural shunt. *Pediatrics* 20:561-564, 1957.
2. Shulman, K. and Ransohoff, J.: Subdural hematoma in children. The fate of the child with retained membranes. *J. Neurosurg.* 18:175-181, 1961.
3. Till, K.: Subdural haematoma and effusion in infancy. *Brit. Med. J.* 3:400-402, 1968.
4. Nelson, W. E.: *Textbook of Pediatrics*, 8th ed. Philadelphia, W. B. Saunders, 1964, 1636 pp. (see pp. 44-47).
5. Collins, W. F. and Pucci, G. L.: Peritoneal drainage of subdural hematomas in infants. *J. Pediat.* 58:482-485, 1961.
6. Moyes, P. D., Thompson, G. D. and Cluff, J. W.: Subdural peritoneal shunts in the treatment of subdural effusions in infants. *J. Neurosurg.* 23:584-587, 1965.
7. Moyes, P. D.: Subdural effusions in infants. *Canada Med. Assn. J.* 100:231-234, 1969.
8. Yashon, D., Jane, J. A., White, R. J. and Sugar, O.: Traumatic subdural hematoma in infancy. *Arch. Neurology* 18:370-377, 1968.
9. Ransohoff, J.: Personal communication, April 25, 1968.
10. Ingraham, F. D. and Matson, D. D.: *Neurosurgery of Infancy and Childhood*, Springfield, Charles C Thomas, 1961, 456 pp. (see pp. 186-200).

Security belongs to those who plan for it. Buy and hold U. S. Savings Bonds and Freedom Shares.



Induction of Ovulation

THAYER E. NELSON, M.D.,* *Wichita*

WITH THE INCREASING surge of information concerning the problems of infertility, many women who have failed to conceive may eventually become pregnant and deliver viable, healthy infants. Tremendous strides have been undertaken towards answering many of the anatomic and physiologic processes of ovulation and conception. Combining the clinical evaluation, biochemical background, and a rapidly increasing number of available steroid and nonsteroidal compounds, pregnancy successes are becoming commonplace when managed in a knowledgeable manner.

Many very potent new "fertility" drugs are coming into the pharmaceutical market. Hopefully, this paper will answer some of the pertinent questions concerning these compounds and their uses. In most instances, "fertility" is not the word of choice. These are generally physiologic compounds which are to be used when there is an indicated absence or need.

To be stressed to the intending physician is the need for a very adequate appraisal of each patient's particular problem. There are individuals who obviously cannot be treated for their infertility problems. In the wide range of individuals tested, none of the series report successes of more than 50 per cent. These individuals deserve honest and frank evaluation concerning their prognosis and adoption of children should be discussed.

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Nelson is now serving his internship at St. Francis Hospital, Wichita.

Figure 1 summarizes the sequence of events in the normal menstrual cycle. The production and release of pituitary gonadotropin are governed by hypothalamic centers which are able to respond to circulating levels of estrogen and progesterone by altering their control over the pituitary gland. Follicle-stimulating hormone (FSH), luteinizing hormone (LH) also known as interstitial cell stimulating hormone (ICSH), and luteotropic hormone (LTH) represent these hormones elaborated by the adenohypophysis specifically associated with the regulation of ovulation. In the initial phases of the cycle, under the influence of FSH secretion, numerous graffian follicles begin to develop. As a rule, however, only one of these follicles is destined for ovulation, while the remaining follicles undergo the degenerative process known as atresia. During the phase of follicular growth, estrogen is produced in increasing amounts, and its excretory products are measurable as metabolites in the urine. As estrogen production increases, characteristic changes occur in the uterine endometrium, vaginal epithelium, and secretions of the cervical glands. In addition, LH is elaborated in increasing amounts and FSH output begins to decline. Shortly thereafter, the follicle ruptures and an ovum is released. At the site of follicular rupture, a corpus luteum develops, and from this transitory structure progesterone is elaborated in substantial amounts. Evidence today suggests that the corpus luteum may also produce estrogen and under the influence of both estrogen and progesterone the uterine endometrium is prepared for the possible implantation of a fertilized ovum. The life span of the corpus luteum

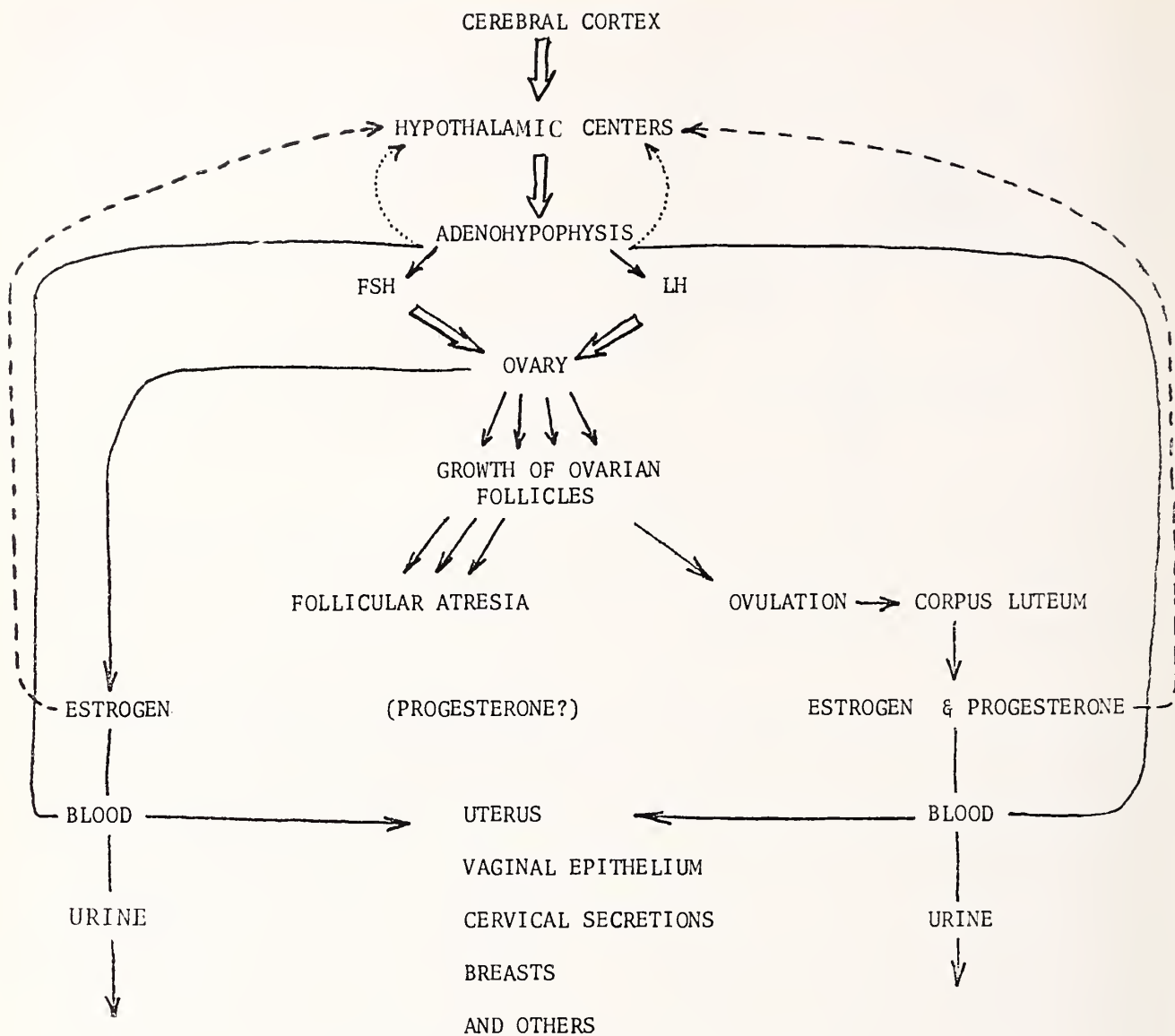


Figure 1. Normal Physiologic Pattern of Ovulation

is limited and if conception does not occur, the corpus luteum begins to regress about ten days after its formation. Consequently, without hormonal support, endometrial desquamation takes place. This composite series of events then repeats itself with FSH again being produced in increasing amounts and a new group of follicles undergoing maturation.

If conception takes place and the fertilized ovum implants on the prepared uterine wall, then other hormonal aspects come into play. At these times during which a normally occurring cyclic event is physiologically suspended, some of the endocrine functions of the ovary are temporarily assumed by the products of conception.

Confirmation of Ovulation

While the willful inhibition of ovulation has been acclaimed, and stimulation of ovulation has been

achieved, the pattern of success with the latter is less consistent than desired. Moreover, the detection and diagnosis of this most important basic phenomenon still remains retrospective and vague. The absolute confirmation of ovulation still resides with the observation of the ovum release, its recovery, or through proof of pregnancy. Using such direct techniques are very impractical and virtually impossible. One must rely on indirect means and clinical judgment to answer this basic and profoundly important question.

Endometrial histology probably affords the best and most reliable means of detecting ovulation. In spite of the pitfalls related to an accurate evaluation, changes brought about by excessive estrogen, prior treatment by progestins etc., endometrial biopsy late in the menstrual cycle is a simple and fairly reliable approach to the presence and timing of ovulation.

Basal body temperature is a moderately accurate method of detecting ovulation. Usually the temperature is taken every morning upon awakening, and a sustained rise in basal temperature of 0.4 F is a rough indicator that ovulation has taken place.

Urinary estrogen—Impractical at the present time except at the research level.

Progesterone and pregnanediol—Currently only a research tool.

Gonadotropin—This is not yet feasible except on a research level; however, in the future, it may be possible to apply some of the radioimmunoassays to detect the rise in LH and predict impending ovulation.

pH changes in the vagina—A peak in the pH of the vagina associated with ovulation is highly variable.

Causes of Anovulation

Referring to *Figure 1*, we see that the first portion of the chart is labeled cerebral cortex control over the hypothalamic centers. This area is unknown and the extent of psychic control over ovulation is unknown. Certainly this factor has to be reckoned with because it is perfectly obvious it plays a very dramatic role with infertile females. Almost every practicing physician has encountered individuals who are very emotional concerning ovulatory failure, fear of or desire for pregnancy, tension, sexual maladjustments, death of a loved one, change of environment, and many others. There have been studies showing a high incidence of menstrual abnormalities and ovulatory failure among psychotic patients. It would be interesting to postulate that the anovulatory state is secondary to no release of FSH, and more probably no LH surge. Although this has not been shown to be statistically significant, another interesting facet of this idea is the number of reported individuals who under advisement of their physicians adopt children, and later become pregnant.

Much work is also being done concerning the transfer of information from the hypothalamic centers to the adenohipophysis. This work is primarily being carried out in rabbits. It appears that it is necessary for the vascular pathways between the hypothalamus and the anterior pituitary to be intact, with or without parasympathetic or sympathetic pathways being intact.

The induction of increased blood levels of LH and subsequent ovulation following the infusion of median eminence extracts directly into the anterior pituitary in the rat lends further support to the presence of hypophyseotropic substances with the central nervous system. Through this very crucial hypothalamic-hypophyseal portal system are transmitted neurose-

cretory substances linking the central nervous system and the adenohipophysis.

Primarily, most of the work which is being done in the treatment of anovulatory states is in the relationship of the anterior pituitary and the ovary. More specifically, the interrelationships of the gonadotropins, estrogens and progesterones, and a new nonsteroidal compound called Clomid (clomiphene citrate).

Selection of Patients

Patients who are ultimately considered for treatment may present many different clinical pictures but invariably have infertility as their leading problem. Therefore, inquiries and investigations follow the pattern which is routine for any case of infertility and may include: general physical examination to detect systemic (including endocrine) disease and to exclude any contraindication to pregnancy; pelvic examination to exclude obvious genital tract pathology; a male fertility test; premenstrual endometrial biopsy to assess ovarian function and exclude endometrial tuberculosis; tubal patency tests; basal body temperature curves, and postcoital tests, i.e., Sims-Huhner test, Duke's test.

Once no other cause of infertility has been found, it is possible that a failure to conceive is due to lack of ovulation. The next step must then be to seek proof that this is so. In the patient who is amenorrhic, this presents no particular problem. In patients who are still menstruating, no opinion about ovarian function can be formed without the help of several simple tests which all provide indirect evidence of ovulation. Basal body temperature curves, premenstrual endometrial biopsies, serial studies of vaginal cytology and cervical mucous (spinnbarkeit and "ferning pattern"), and 24-hour urinary pregnanediol estimations may be helpful in this respect.

Once lack of ovulation is established with reasonable certainty, it is necessary to take the diagnosis a step further by trying to determine its cause, with a view of rationalizing treatment. To do so, a number of procedures over and above those already mentioned may be indicated, particularly in patients with primary or long-standing secondary amenorrhea. These procedures include: x-ray examination of sella; full neurologic examination; sex chromatin determination; chromosome analysis of cultured peripheral leucocytes; serial measurements of estrogen, pregnanediol, 17-ketosteroid, and 17-ketogenic steroid excretion in 24-hour specimens of urine under various conditions of adrenal and ovarian suppression and stimulation; gonadotropin excretion studies; culdoscopy; laparotomy with ovarian biopsy; and finally an "FSH test" which warrants closer description.

The ovaries are stimulated by ten daily doses of FSH each containing about 100 International Units (IU) of FSH activity. Twenty-four-hour urine collections are made just before the first injection and starting on the last day of treatment. The estrogen, pregnanediol, pregnanetriol, 17-ketosteroids, and 17-ketogenic steroid content of both specimens are determined. The response of the ovaries is also measured by changes in their size on bimanual examination and the behavior of cervical mucus and serial karyopyknotic indices of the vaginal smear. Patients whose hormonal and clinical status remains static probably have irreversible ovarian failure. A rise in the karyopyknotic index, the volume of cervical mucus, and the total estrogen excretion to less than 300 micrograms constitutes a good response to FSH in terms of follicular development. An associated rise in pregnanediol indicates ovulation in response to FSH alone. If a rise in 17-ketosteroids without an equivalent increase in 17-ketogenic steroids occurs, abnormal ovarian sex steroid biosynthesis is implied, a state which is sometimes seen with the Stein-Leventhal syndrome. Overreaction to FSH, as evidenced by clinically detectable ovarian enlargement or a rise of total estrogen excretion to above 300 micrograms per 24 hours, is a signal for more than usual caution during any subsequent treatment with gonadotropin.

Clomiphene Citrate (Clomid)

Clomiphene citrate (Mrl-41), a nonsteroidal estrogen antagonist structurally analogous to chlorotrianisene ([MER 25] TACE) and stilbesterol, and having weak estrogenic activity has been shown to possess properties that result in improvement of hypothalamic, pituitary function and ovulation.

Greenblatt reported in 1961 the successful use of clomiphene in the induction of ovulation in anovulatory females with varying degrees of amenorrhea. The mechanism and site of action of clomiphene remains obscure whether the primary action in improving ovulatory function is ovarian, pituitary or hypothalamic.

In reviewing most of the literature, it seems that clomiphene may have several sites of action: on the hypothalamus and pituitary displacing estrogen and thus releasing inhibitory effects in these organs; on ovarian steroid syntheses increasing secretion of estradiol and estrone; on the uterus and peripherally exhibiting an "anti-estrogen" effect by competitive inhibition at binding sites. With the suggested modes of action in mind, it becomes apparent that clomiphene may be beneficial in the management of many disease entities provided an intact hypothalamic-pituitary-ovarian axis is present expressing endogenous estrogen.

The selection of the infertile patient for treatment with clomiphene requires an intact hypothalamus and pituitary with evidence of endogenous estrogen demonstrated by vaginal smear, endometrial biopsy, withdrawal bleeding following progestin or urinary estrogens. As previously mentioned, a thorough pretreatment evaluation should be undertaken to exclude adrenal, ovarian, uterine and central nervous system neoplasia and other causes of infertility, both male and female.

To date, most authors agree that the types of infertility problems best treated with clomiphene have been those patients with one of the following disorders.

1. Postoral contraceptive amenorrhea.
2. Postpuberty adrenogenital syndrome.
3. Chiarr-Frommel syndrome (postpuerperal amenorrhea and galactorrhea).
4. Endometrial hyperplasia (a complication of prolonged anovulatory failure).
5. Primary amenorrhea without neoplasia (within this group of patients is the Stein-Leventhal syndrome patients and for such individuals this is the drug of choice).

Clinical failures have been demonstrated in the following types of patients.

1. Premature menopause.
2. Pan-hypopituitarism.
3. Sheehan's syndrome.
4. Gonadal dysgenesis (Turner's syndrome).

As experience has been gained during the past several years, it has become apparent that no single dosage schedule can be used on every patient. The individual's response is the best guide. The recommended dosage schedule should be done in a conservative manner:

1. 50 milligrams daily for three to five days beginning on the last or fifth day of menstrual period.
2. 100 milligrams daily for five days beginning on the last or fifth day of menstrual period.
3. 200 milligrams daily for three days beginning on the last or fifth day of menstrual period.

After patient evaluation and a plan for the use of clomiphene has been outlined, all potential complications and side effects should be explained to the patient. A pelvic examination to evaluate ovarian size should be done the first and second week after therapy. If ovulation occurs, it will do so 70-80 per cent during the first two cycles, five to ten days after clomiphene. During this period of therapy, the patient should be instructed to keep temperature charts, have vaginal smears to observe for ferning, endometrial biopsy, and possibly urinary pregnanediol levels should be followed.

The side effects of clomiphene are dose related, unpredictable, transient, reversible and infrequently

interfere with treatment. The most striking side effect is ovarian cyst formation. These are leuteinized cystic follicles, which have been upwards to about 10 centimeters in diameter. Generally these will regress when treatment is stopped. Treatment should not be re-initiated until the ovaries are again normal in size.

It is generally accepted that there is a higher than normal percentage of pregnancy wastage with clomiphene-induced pregnancies (20-25 per cent), and a higher incidence of multiple births (10-20 per cent). Many authors feel that it is safer if conception is not attempted in the first month of treatment, and others include the use of supportive therapy with estrogen and progesterone to decrease the pregnancy wastage.

It is felt that treatment with clomiphene has failed if there is no evidence of ovulation after three months. It is generally accepted that the dosage of clomiphene should never exceed 600 milligrams per cycle.

If the clomiphene treatment has failed or if the patient is not amenable to clomiphene and yet does not show irreversible ovarian failure, she may be treated by gonadotropin therapy.

Use of HPG, HMG, HCG in the Treatment of Infertility

As previously mentioned, there are some females who are not amenable to clomiphene citrate therapy. Women with high titers of gonadotropin are suffering from primary ovarian deficiency, not from inability to release adequate quantities of gonadotropin to induce ovulation. Clomiphene is therefore disappointing in these cases. Women with low, or no, urinary gonadotropin will not release adequate quantities to induce ovulation and would be better treated with human pituitary gonadotropin. It has been found that clomiphene is successful when the total urinary estrogen level is greater than 10 micrograms per 24 hours; when it is less than 10 micrograms per 24 hours HPGSH and HCG are successful.

The aim of treatment is to reproduce the normal physiological maturation of the follicle and then give chorionic gonadotropin as a source of LH activity to induce ovulation and corpus luteum formation.

Fukushima *et al.* in 1964 and other groups suggest that FSH during the normal ovulatory cycles may be required only for a few days at the beginning of the cycle. In addition, we now know that the maximum estrogenic response occurs five to eight days after a single injection of FSH or after 11 to 12 days if HCG is combined with the FSH dose.

Considerable work has been done concerning standardizing of dosages, purification of hormonal and pituitary extracts, etc. The initial testing was done on animals. In 1960, Hansal and Malven gave Provera

to cattle, and induced ovulation, but also noted some infertility problems secondary to the excessive progestin activity. HCG is found to have LH-like effects. Human menopausal gonadotropins were extracted from the urine of postmenopausal females. Serum from pregnant mares contained gonadotropins and was subsequently extracted. Extracts have been made from remnants of human pituitary glands retrieved at the time of autopsy.

All of these compounds are being refined and tested at the present time with success, although certainly at an experimental level. Much is being accomplished, but more is needed to insure a greater success rate and to lessen the unwanted side effects of pregnancy wastage and gynecological pathology.

In 1966, Townsend, *et al.*, evaluated the responses of women who had urinary estrogen levels of less than 10 micrograms per 24 hours. These women were given human pituitary follicle stimulating hormone (HPFSH) 2.5 milligrams daily until their urinary estrogen levels were from 30 to 60 micrograms per 24 hours. This was usually accomplished within five to seven days. Then they were given another day's dosage. Following this (approximately seven to nine days), they were given human chorionic gonadotropin (HCG), 5,000 international units. This was considered the ovulating dose, and should be associated with a rise in pregnanediol levels. These dosages were followed by further additions of HCG to support the newly formed corpus luteum. Of 13 patients treated nine became pregnant (two aborted at 10 and 23 weeks; three had normal pregnancies; three were still pregnant at time of publication; one gave birth to twins), three were still under treatment, and one patient defaulted from the study. Two of the patients developed enlarged ovaries with associated rapidly rising estrogen levels.

In 1967, Crooke, *et al.*, devised a method of testing the variable responses of different women to FSH, and they found that one large dose of two thirds the total amount given serially gave better results. They then tested the women for FSH response, treated them with a single dose of FSH, and on the tenth day gave them 4,000 international units of HCG. The only difference in the treatment was the total amount of FSH required to achieve the same results, except that the women on the lesser dosage showed no signs of hyperstimulation.

Rabau, *et al.*, in 1967, in a study of two groups of patients gave Pergonal (HMG) with a ratio of FSH/ICSH activity of 3 to 6, until there was a sufficient rise in estrogen titer and followed this with an increased amount of HCG. Group I (76 patients) had very low or absent levels of gonadotropin. They had a pregnancy success level of 61.9 per cent with ten multiple births. Group II consisted of 34 pa-

tients with some gonadotropin and ovarian activity. The pregnancy success rate was 41.1 per cent with 12 multiple births, and 12 were hospitalized because of adverse side reactions.

Butler and Searle in 1967 demonstrated that there was considerable dosage overlap in treatment of the infertile females when using HPG, but it did appear that more HPG was needed in cases of primary amenorrhea.

Traymoor, Sturges, Goldstein, and Lieberman later in 1967 utilized all of the aforementioned literature and devised a method of a sequential form of giving HMG and then following with a single dose of HCG. They were attempting to simulate the exact physiological pattern as much as possible, but could not because of the exacting task of achieving the proper FSH-LH ratios found within HMG. Their results were in the range of 30-40 per cent pregnancy success with the usual complication rate. Ideally, they probably are quite correct, but only refinement and experimentation will show this to be true.

Until that time it would seem best to start HMG therapy with less than the maximum dosage. A step-down pattern that continues one or two days after the first day of 3+ ferning might be utilized initially. The amount and duration of administration of HMG can keep ovarian overstimulation to a minimum.

Summary

Recent advances in the knowledge and understanding of ovulation have made it possible for many oligo or anovulatory females to conceive and bear normal, healthy and viable infants.

Clomiphene citrate (Clomid) has been shown to effectively induce ovulation in many females who have an intact hypothalamic-pituitary-ovarian axis. Although reversible, there are dosage related side effects which should be watched closely. There is also a noteworthy incidence of multiple births (super ovulatory), and an increased incidence of pregnancy wastage.

It is to be stressed that clomiphene citrate is not a panacea of the anovulatory state, and that complete understanding of the drug and the particular patient's difficulty must be taken into account before its administration.

Further researching of the literature shows the tremendous strides being undertaken in the usage of human pituitary gonadotropin (HPG), human menopausal gonadotropin (HMG), human chorionic gonadotropin (HCG). These compounds are not marketable at this time and are primarily research tools, but they show further indications for pregnancy successes where there is no irreversible ovarian failure.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.

AMA HEALTH TIPS

Fishing is good therapy—both physical and emotional—says the American Medical Association.

Of course, the millions of Americans who head for the lakes and streams across the nation each fishing season don't need a doctor to tell them that fishing is good sport. They probably have seen their doctor sitting in the next boat with a line in the water.

Fishing can be elaborate, complete with a trip to the seashore and renting deepsea boats and equipment. Or it can be the cane pole and worms affair on the banks of a neighborhood creek. Either way it gets us out in the fresh air and sunshine, gets our minds off the cares of the day.

Unless you are the vigorous type who wades through racing rapids or rows hard for miles, fishing is mild exercise. Fishing is good for the body and spirit. But it has some built-in hazards. Most of them can be avoided.

The most common fishing accident is catching a barbed hook in the flesh, usually a finger or hand, but sometimes a leg or other part of the body. Lures and hooks left unprotected on a dock or on the bottom of a boat cause many of these accidents.

The wise fisherman guards against accidents by shielding the hook. One simple way to do this is to stick a small cork over the barb. Lures should be stored in the tackle box until needed, and returned promptly to the box when removed from the leader. The band of your favorite fishing hat is, of course, a reasonably safe place to keep lures you intend to use later in the day.

Fly or bait casters are responsible for many hook accidents to their fellow fishermen. Particularly dangerous are the "side-winders" who cast with a side arm motion rather than overhead. Train yourself to look before each cast to make certain no one is in the way. This will also save lures from snagging on trees and bushes as you cast.

In removing a hook from the fish, hold the fish firmly under the gills, so that its head can't flop or wiggle. A freshly caught fish is slippery and hard to hold. Get a firm grip before dislodging the hook.

If, despite precautions, a hook becomes imbedded in your hand or finger, don't try to pull it out. Your physician will snip off the shank and push it through, thus causing less further damage to torn flesh. The doctor will also, if necessary, administer antibiotics and tetanus toxoid. Hook wounds often lead to infection unless treated properly.

Fishing is fun. A fish hook through the hand can spoil the day. With care it can be avoided.

The President's Message

THE GOOSE THAT LAID THE GOLDEN EGG

Citing Aesop's Fables certainly shows advancing age. However, these parables would be well taught today; their message is still quite appropriate. Medicare and Medicaid have produced golden eggs for some of our members and it is well that this fable be remembered.

The program in Kansas is probably the best that can be written under the Federal law. Jim McClure and many others worked long and hard with the Board of Social Welfare and the legislature to develop it. Many consider this program a form of socialized medicine but it is the law of the land.

Now physicians are under attack (as we knew they would be) for their excessive charges. And as always there are those few whose actions make these allegations applicable to all physicians.

In respect to Medicare and Medicaid, there are roughly three groups of physicians (the same classifications could be applied to dentists and pharmacists). By far the largest group take care of relatively few of these patients and make their standard charge. The second group see many of these people because they always have. Now they are deservedly being paid for the care they used to give for a reduced or no fee. The third very small group is characterized by the physician who has suddenly developed a marked interest in these patients and is over-utilizing, over-charging, and over-encouraging office care.

The social planners point with glee to the figures they can accumulate from this last group and try to apply it to all of medicine.

Our only plea to those physicians in this group,

PLEASE DON'T KILL THE GOOSE.

LELAND SPEER, M.D.
President





The frequent use of the terms usual, customary and reasonable since the passage of the Medicare law caused the AMA to provide a medical definition of those terms. The following resolution was passed at the clinical session of the House of Delegates in December 1968.

WHEREAS, There is a rapidly increasing number of programs for financing health services based upon the *usual, customary and reasonable* concept for payment of physicians' services; and

WHEREAS, It is in the best interest of the public and physicians of the country that a national definition of the terms *usual, customary and reasonable* be formulated by the American Medical Association; therefore be it

Resolved, That the American Medical Association adopt the following definitions and distribute them to all state medical associations for their individual consideration and guidance:

Usual is defined as the "usual" fee which is charged for a given service by an individual physician in his personal practice (i.e., *his own usual fee*);

Customary is defined as that range of usual fees charged by physicians of similar training and experience for the same service within a given specific limited geographic or socio-economic area;

Reasonable is defined as a fee which meets the above two criteria, or, in the opinion of the responsible local medical association's review committee, is justifiable in the special circumstances of the particular case in question; and be it further

Resolved, That whenever these terms are use in contracts or laws that they be specifically defined in those documents.

Usual, Customary, Reasonable

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

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The Council

Report of Meeting Held May 7, 1969

The Council met briefly at the conclusion of the House of Delegates on Wednesday, May 7, 1969, with luncheon beginning at 2:00 p.m. at the Statler Hilton Inn, Salina. Present were Dr. Leland Speer, President; Drs. G. E. Burket, Jr., T. P. Butcher, F. T. Collins, C. C. Conard, R. F. Conard, Val Converse, N. L. Francis, K. L. Graham, R. H. Greer, R. W. Hughes, M. R. Knapp, C. M. Lessenden, Jr., J. W. Manley, J. J. Marchbanks, S. C. McCrae, J. C. Mitchell, J. L. Morgan, G. L. Mowry, L. S. Nelson, N. H. Overholser, L. R. Pyle, W. J. Reals, W. G. Rinehart, E. J. Ryan, E. T. Siler, M. O. Steffen, T. F. Taylor, E. N. Tihen, F. P. Wolff, and E. D. Yoder. Also present were Mr. R. G. "Swede" Swenson and Mr. Oliver E. Ebel.

Dr. Speer called the meeting to order and introduced the newly elected officers, councilors and alternate councilors.

The first item of business was the election of a member to the Editorial Board. There are five members elected for three-year terms. This year the term for David E. Gray, M.D., Topeka, was up for consideration. A motion was made and carried that Dr. Gray be re-elected for a three-year term.

The editor is annually appointed from the membership of the Board. By an immediate acclamation Dr. Orville R. Clark was reappointed editor.

A motion was then made and seconded that Dr. Clark be sent a letter of commendation for the sterling performance of his duties. This motion carried.

The president next called upon Dr. Norton L. Francis, chairman of the KaMPAC Board. He distributed a financial report showing the balance in the educational fund as of December 31, 1968, to be \$684.40. He reported some had additionally been spent since that time.

Dr. Francis stated the KaMPAC workshop would be held in Topeka on Sunday, October 12. He announced that 60 memberships had been sold at this meeting and stated that he was considering the possibility of inviting officers of selected dental societies to join in the workshop. Dr. Francis requested that the Society contribute \$500 to be used for educational purposes. A motion was made and seconded that \$500 be contributed to the KaMPAC educational fund. This motion carried.

A report was given the Council about recent explorations by the Executive Committee on whether a lawyer should be retained to serve the Society or whether legal services should be purchased as required.

After some discussion a motion was made and seconded that the Executive Committee be given the authority to employ at its discretion a lawyer on a fee-for-service basis. This motion carried.

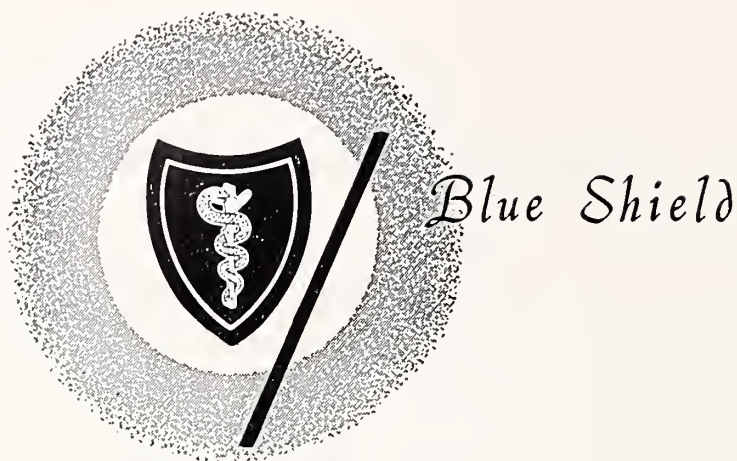
Dr. Speer made a brief report concerning objectives for the coming year. He expressed his pride in this Society. He hoped for suggestions regarding members who might serve on committees. He hoped each member of all commissions could be given meaningful committee assignments and stated he had already determined to appoint a Committee on Aerospace Medicine. Any other ideas for new ventures by the Society would be appreciated.

Dr. Collins stated that on July 1 he would resign as medical advisor to Selective Service and that a new person would be selected. He advised the Council they are the committee who are individually requested for information about prospective draftees among physicians in the area.

There being no further business, the meeting adjourned at 2:45 p.m.

Journal on Microfilm

Microfilmed copies of current as well as all back issues of the JOURNAL are available through University Microfilm Services, a subsidiary of Xerox Corporation. The 35 mm film fits all standard viewers and provides the JOURNAL in miniature at a savings on binding and storage costs. Write for information or send orders direct to University Microfilm Services, 300 North Zeeb Road, Ann Arbor, Michigan 48106.



Although it will never make the book of the month club's best seller list, the Blue Shield Participating Physician's Manual, has been printed and distributed to Kansas Participating Physicians.

The two hundred and two page manual was two years in the writing and was compiled from a dozen different source documents which reflected the Prevailing Charge Program and various programs that Blue Shield administers.

A major breakthrough involving a significant portion of the manual occurred when the Prevailing Charge Policy was adopted through Resolution No. 55 by the Kansas Medical Society House of Delegates. With the passing of Resolution No. 55 and the subsequent Prevailing Charge Policy Memos which amplified and clarified the House-approved resolution, an essential foundation for the manual's format was provided as approximately 96 per cent of Blue Shield's business includes some form of Prevailing Charge coverage.

The physical format of the new manual varies greatly from its 1963 predecessor in that there are no multi-colored sections; the manual itself is printed on 8½ x 11 pages; it contains numerous illustrations of I.D. cards and completed claim forms in various billing situations; and the type size is larger for greater reading ease in addition to being geared primarily to Prevailing Charge coverage and business procedures involving Blue Shield subscribers. Designed with both the doctor and medical assistant in mind, the manual achieves both these goals in that it reflects Blue Shield policy and other subjects which are of primary interest to the doctor while it illus-

trates the every day aspect of doing business with Blue Shield which is of concern to the medical assistant in the areas of subscriber identification and coverage and claims filing procedures.

Although it is too early to say the manual is an unqualified success (it has been in doctors' offices about a month as of this writing), early returns indicate that the manual has been favorably received both by doctors and medical assistants. One office has indicated that when Blue Shield patients have a question regarding amount of payment, subscriber liability involving payment contracts, covered versus non-covered services, etc., the manual has been used successfully in resolving the subscriber's questions when they are shown the section of the manual dealing with the areas with which they are involved.

Current plans call for up-dating the manual quarterly as revisions are required. Hopefully, these changes can be kept at a minimum; however, since the manual utilizes a modified Dewey Decimal page numbering system, it should accommodate future revisions or additions.

Overall, the new manual incorporates pertinent features of the old manual and adds new concepts which provide easy access to not only Blue Shield's Basic programs but also other programs which Blue Shield administers.

In the final analysis, however, the new manual, or any manual, is only as good as to the extent which it meets the needs of the people it serves. Suggestions regarding additions to or revisions of the current manual will be considered in the future. Any comments you wish to make should be directed to Blue Shield Professional Relations Division.

Additional copies are available to Participating Physicians on request.

Prepared by members of the Blue Shield staff.



Personalities—IN KANSAS MEDICINE

The Kansas Bar Association named **E. Burke Scagnelli** to receive a special Law Day award in recognition of his service to Kansas youth. The award was presented to Dr. Scagnelli at the annual banquet of the KBA convention held in Topeka in May. He was also named winner of the Liberty Bell award given by the Ford and Gray County Bar Association.

J. Cotter Hirschberg, Topeka, has been elected president of the American Association of Psychiatric Clinics for Children. Recently he was named chairman of the committee on certification in child psychiatry of the American Board of Psychiatry and Neurology.

William W. Burney, Wichita, was honored as the 1969 recipient of the Distinguished Alumni Citation of the Dodge City Community Junior College at the commencement exercises in May.

The new director of the Children's Rehabilitation Unit at the University of Kansas Medical Center is **John S. Spaulding**. He succeeds **Herbert C. Miller**, who has been both director of the unit and chairman of the pediatrics department.

Mitchell Jones, Newton, became a member of the American College of Psychiatrists at the organization's annual meeting in Miami Beach in May.

Two physicians have relocated in Clay Center. **Dennis D. Richards** and family moved there from Herington in May, and **Richard C. Carleton** and his family moved from Colby to Clay Center this month.

Dr. and Mrs. Edmer Beebe, Olathe, returned in April from a five-month stay in Bangkok, Thailand. Dr. Beebe replaced an American doctor on leave from the Christian Hospital in Bangkok.

Winston K. Mebust, associate professor of surgery (urology) at KUMC, was one of the speakers at the 64th annual meeting of the American Urological Association in San Francisco in May. Dr. Mebust is also chief of urology at Veterans Administration Hospital, Kansas City, Missouri.

The Wyandotte County Tuberculosis and Health Association has re-elected **William E. Burger** as president of the association. Other Kansas City physicians re-elected to 1969-71 terms include **Paul Carpenter**, **Lloyd Coale**, **William W. Abrams**, **Virginia Gruendel** and **Francis Nash**.

William E. McCann, Olathe, has been awarded a trophy of national recognition for his achievements with the Federal Aviation Administration. Dr. McCann, who performs flight physical examinations for both commercial and private pilots, was awarded the trophy by the Civil Aviation Medical Association.

Porter Barbera, Independence, attended a post-graduate course on pulmonary care in children and infants at the University of Illinois in Chicago in April.

The director of the Johnson County Health Department, **Bruce E. Hodges**, Lenexa, has been elected section chairman, Health Officer Section, of the Kansas Public Health Association.

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Disease Prevention and Control—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in April, 1969 and 1968

<i>Diseases</i>	<i>April</i>			<i>January-April Inclusive</i>		
	1969	1968	<i>5-Year Median 1965-1969</i>	1969	1968	<i>5-Year Median 1965-1969</i>
Amebiasis	—	1	1	—	4	3
Aseptic meningitis	1	—	—	3	—	—
Brucellosis	—	1	—	1	1	1
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	4	—	2	4	2
Encephalitis, post-infect.	—	—	—	—	1	—
Gonorrhea	328	287	287	1,464	1,271	1,265
Hepatitis, infectious	24	23	23	115	94	94
Measles (Rubeola)	3	1	*	3	8	*
Meningococcal meningitis	2	1	2	13	13	9
Mumps	24	84	*	72	593	*
Pertussis	—	—	—	—	—	3
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	2	1	2
Rubella (German Measles)	8	31	*	30	99	*
Salmonellosis	15	13	15	49	60	60
Scarlet fever	—	3	4	21	21	48
Shigellosis	2	2	3	19	13	19
Streptococcal infections	120	388	293	1,328	1,401	1,328
Syphilis	162	58	88	627	325	352
Tinea capitis	6	8	8	17	27	20
Tuberculosis	32	17	23	76	79	77
Tularemia	1	—	—	1	1	1
Typhoid fever	—	—	—	—	—	—

* Statistics on 5-year median not available

**RUBELLA VIRUS VACCINE—
PRELICENSING COMMENTS**

The live, attenuated rubella virus vaccine soon to become available appears to be a highly effective immunizing agent and the first suitable method of controlling rubella.

Rubella is generally a mild illness, but if the infection is acquired by a woman in the early months of pregnancy, it poses a direct hazard to the fetus. Preventing infection of the fetus is the principal objective of rubella control. This can best be achieved by eliminating the transmission of virus among children, who are the major source of infection for susceptible pregnant women.

The live rubella virus vaccine will be prepared in cell culture of avian or mammalian tissues. It will be administered as a single subcutaneous injection. Approximately 95 per cent of susceptible vaccinees in recent investigations have developed antibodies, but titers are lower than those observed following natural

rubella infection. However, antibody levels have declined very little during the three-year period of observation of children who were among the first to be immunized with rubella vaccine. Long-term protection is likely, but its exact duration can be established only by continued observation.

The live rubella virus vaccine will be recommended for boys and girls between the age of one year and puberty. It will not be recommended for infants less than one year old because of possible interference from persisting maternal rubella antibody.

Children in kindergarten and the early grades of elementary school will deserve initial priority for rubella vaccination because they are commonly the major source of virus dissemination in the community. A history of rubella illness will not exclude children from immunization. Vaccination of adolescent or adult males will be of low priority because so few are susceptible.

(Continued on page 346)



Book REVIEWS

ROENTGEN TECHNIQUES IN LABORATORY ANIMALS, edited by B. Felson, M.D., W. B. Saunders Company, Philadelphia, 1968. 245 pages illustrated. \$17.50.

The increasing use of radiologic study of small animals in a wide variety of biological research disciplines prompted the development and publication of this compact manual under the sponsorship of the Veterans Administration. It serves primarily as an introduction and guide to the use of x-rays for those research workers without previous experience in the use of roentgen techniques. Most of the chapters are contributions from clinical radiologists well known for their basic research work in human radiology. There are several interesting discussions (e.g., myelography in the cat and dog) from veterinary radiologists.

Basic radiographic procedure and protection are well covered. The normal radiologic anatomy of commonly used laboratory animals is portrayed in a rather limited fashion, suitable only for orientation with reference made to more elaborate texts. The techniques of a variety of special procedures, including intravascular contrast studies, are well defined and the pharmacology of the agents employed are discussed in terms of animal systems. An intriguing section on magnification and micro-angiographic techniques particularly useful in studying circulatory dynamics in organs and tissues, including tumors, completes the book.

One of the outstanding features of the manual is the carefully selected list of references at the end of each section. For the first time, the reader has collected for him in one source virtually all of the current literature of value with regard to the use of animal radiology in research. Under Dr. Felson's able editorship, the various authors have conformed to a clear and readable style of presentation. As an introductory manual, it constitutes a solid core of in-

formation from which most of the fat has been trimmed.

This small volume will be of only passing interest to the practicing physician and clinical radiologist. On the other hand, it is certain to become a standard and well-thumbed reference among research workers.—*J.W.T.*

PRACTICAL PSYCHIATRY FOR THE INTERNIST, by Douglas Goldman and George A. Ulett. C. V. Mosby Company, St. Louis, 1968. 168 pages. \$9.85.

This book has been written to help the internist, the general practitioner, and the other physicians interested in understanding the emotional and psychological stress of the patient.

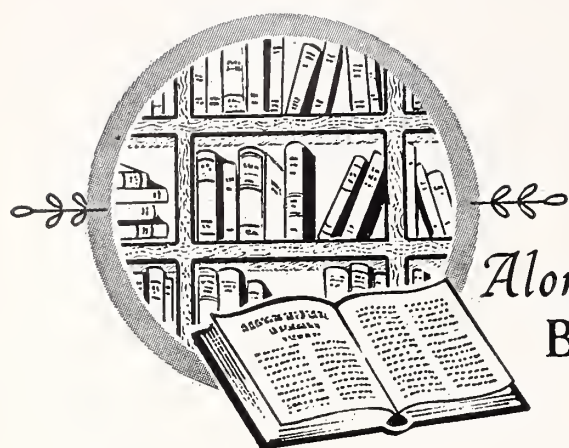
It covers the general discussion of surgical practice, psychosomatic aspects of internal medicine, and psychiatric disorders. The section on Psychopharmacology is very interesting and informative covering the hypnotic sedatives, stimulants, psychotropic drugs, Parkinson drugs, anticonvulsants and the drugs with secondary psychiatric interest.

The purpose of the book is to improve the practitioner's sense of security in dealing with the emotional and psychological manifestations of the patient. This should be an acceptable book to every doctor treating patients.—*W.N.*

APPRAISAL OF CURRENT CONCEPTS IN ANESTHESIOLOGY (Vol. 4) by John Adriani. C. V. Mosby Company, St. Louis, 1968. 464 pages. \$12.00.

This fourth book in a series all using the same title is just what the name implies—a review of current literature—unusually well documented writings on a broad list of topics related to anesthesia.

(Continued on page 346)



Along The BOOKSHELF

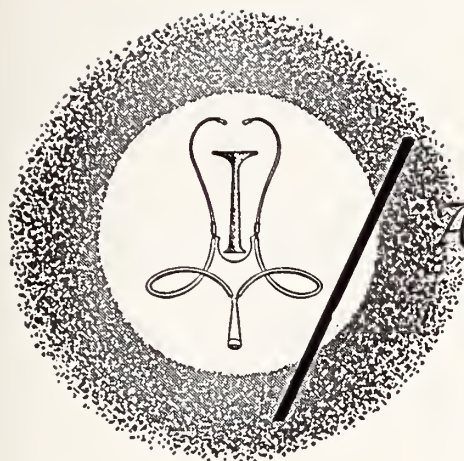
Clendening Medical Library

RECENT ACQUISITIONS

- Ackerknecht, Erwin Heinz. A short history of medicine. [Rev. Print.] New York, Ronald Press, 1968.
- Atkins, Hedley. Measurement and precision in surgery. Oxford, Edinburgh, Blackwell Scientific Publications, 1969.
- Ban, Thomas. Psychopharmacology. Baltimore, Williams & Wilkins, 1969.
- Biddle, Harry Clarence. Chemistry in health and disease. 7th ed. Philadelphia, F. A. Davis Co., 1969.
- Butterfield, W. J. H. Priorities in medicine. London, Nuffield Provincial Hospitals Trust, 1968.
- Chayet, Neil L. Legal implications of emergency care. New York, Appleton-Century-Crofts, 1969.
- Ellis, Harold. Lecture notes on general surgery. 2d ed. Philadelphia, F. A. Davis Co., 1968.
- Fontan, Vincent J. Practical management of the allergic child. New York, Appleton-Century-Crofts, 1969.
- Herman, Harold. Community health services. 2d ed. Washington, D. C., Published for the Institute for Training in Municipal Administration by the International City Managers Association.
- Kadushin, Charles. Why people go to psychiatrists. New York, Atherton, 1969.
- Knelson, John H. Unusual pulmonary diseases. Chicago, Year Book, 1969.
- Krovetz, L. Jerome. Handbook of pediatric cardiology. New York, Hoeber Medical Div., 1969.
- Kruse, H. D. Nutrition; its meaning, scope, and significance. Springfield, Ill., Thomas, 1969.
- Kurtz, Harold P. Public relations for hospitals; a practical handbook. Springfield, Ill., Thomas, 1969.
- LeRoux, Bernard Theodore. Bronchial carcinoma. Edinburgh, London, E. & S. Livingston Ltd., 1968.
- Modern neurology; papers in tribute to Derek Denny-Brown, by 59 authors. Edited by Simeon Locke. 1st ed. Boston, Little, Brown, 1969.
- Moser, Robert Harlan. Diseases of medical progress: a study of iatrogenic disease. . . . Springfield, Ill., Thomas, 1969.
- Smith, Elmer Lewis. Early American home remedies. Witmer, Pa., Applied Arts, 1968.
- Stein, Herman D. Social theory and social invention. Cleveland, Press of Case Western Reserve University, 1963.
- Strandness, D. E. Collateral circulation in clinical surgery. Philadelphia, Saunders, 1969.
- Sunderland, Sydney. Nerves and nerve injuries. Baltimore, Williams and Wilkins, 1968.
- Symposium on Sports Medicine, Oklahoma City, 1967.
- Tothill, Peter. Measurement techniques for the clinical application of radioisotopes. Amersham, Radiochemical Central, 1968.
- United Hospital Fund of New York. Essentials for hospital volunteer service. New York, 1968.
- U. S. President's Committee on Population and Family Planning. Population and family planning. . . . Washington, 1968.

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Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The Department of Psychiatry, College of Medicine, University of Iowa, Iowa City, announces the availability of psychiatric residencies for physicians who have been in practice at least four years and are not over 45 years of age. Stipends are \$12,000 per year for three years and are supported by the Public Health Service. For information write Paul E. Huston, M.D., Head, Department of Psychiatry.

AUGUST

- Aug. 10-15 American Congress of Rehabilitation Medicine, Palmer House, Chicago. Contact: Creston C. Herold, Exec. Director, 30 N. Michigan Avenue, Chicago 60602.
- Aug. 18-21 American Hospital Association, International Amphitheatre, Chicago. Contact: Edwin L. Crosby, M.D., 840 N. Lake Shore Drive, Chicago 60611.
- Aug. 21-23 Rocky Mountain Radiological Society, Brown Palace Hotel, Denver. Contact: Robert W. Lackey, M.D., 4200 E. Ninth Street, Denver 80220.

SEPTEMBER

- Sept. 18-20 7th Seminar and Practical Workshop on *Diagnostic Ultrasonics*, sponsored by the Division of Neurological Surgery of The Johns Hopkins University, Baltimore, and Metrix, Inc., of Denver. The Ultrasonic Seminar will be at The Johns Hopkins Hospital. For information write Ultrasonic Seminar, P.O. Box 6222, Denver, Colorado 80206.
- Sept. 26-27 20th Annual Meeting and 6th Annual Delegates Assembly, Kansas Heart Association, Jayhawk Hotel, Topeka. M. Graham Clark, Point Lookout, Missouri, president of the School of the Ozarks and vice president of the American Heart Association will be the featured speaker at the banquet on Friday

evening. For information write the Kansas Heart Association, Inc., 2941 Fremont, Topeka 66605.

Sept. 21-25

4th International Symposium on *Comparative Leukemia Research*, Cherry Hill, New Jersey. Co-sponsored by the Leukemia Society of America, Inc. and the Special Virus Cancer Program of the National Cancer Institute of the National Institutes of Health. For more Information contact Dr. Edward P. Larkin, School of Veterinary Medicine, University of Pennsylvania, Kennett Square, R.D. # 1, Pennsylvania 19348.

POSTGRADUATE EDUCATION

University of Colorado:

July 31-Aug. 2 *Dermatology* (Aspen)

Aug. 3-6 *Pediatrics* (Aspen)

Aug. 11-16 *General Practice Review*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Hahnemann Medical College and Hospital, Philadelphia:

Aug. 11-17 *Space Medicine*

For further information write Hahnemann Medical College and Hospital, 230 N. Broad Street, Philadelphia 19102.

Denver Children's Hospital:

Sept. 7 *Pediatric Radiology*

Oct. 24 *Intensive Care*

For further information regarding the above continuing education courses contact L. Joseph Butterfield, M.D., Department of Continuing Education, Children's Hospital, 1056 E. 19th Ave., Denver.

- July 29-Aug. 1 *Developmental Pediatrics: Communication for Assessment and Management*, sponsored by the American Academy of Pediatrics, at the University of Texas Medical Branch, Galveston. For information write Gerald E. Hughes, M.D., Secretary for Educational Affairs, American Academy of Pediatrics, Box 1034, Evanston, Illinois 60204.
- Aug. 14-16 *Peptic Ulcer*, postgraduate course sponsored by the American Gastroenterological Association, Aspen, Colorado. Write AGA Postgraduate Course, P.O. Box 20056, Denver 80220.
- Sept. 11-13 *Myocardial Infarction*, continuing education course sponsored by the American College of Chest Physicians, the University of Texas Southwestern Medical School, Dallas, and the Methodist Hospital of Dallas. For information contact Fouad A. Bashor, M.D., American College of Chest Physicians, 112 E. Chestnut St., Chicago 60611.

The Division of Maternal and Child Health of the University of California School of Public Health at Berkeley announces the following postgraduate programs for pediatricians, obstetricians, and other physicians interested in receiving training in the field of Maternal and Child Health. These programs all lead to the degree of Master of Public Health. Tax-exempt fellowship support is available.

Maternal and Child Health. A 9-month program in planning, organizing and operating comprehensive health services for mothers and children.

Family Planning. A 9-month academic program providing intensive work in family planning as part of the general graduate preparation of maternal and child health specialists.

School Health. A 9-month academic program providing intensive work in school health as part of the general graduate preparation of maternal and child health specialists.

The Multiply Handicapped and Mentally Retarded Child. A 21-month academic and clinical program in planning, organizing, and operating community services for children with multiple handicaps, including mental retardation.

Career Development Programs. Three-year academic and residency programs consisting of one year of academic training leading to the degree of Master of Public Health combined with residency training in Pediatrics or Obstetrics-Gynecology.

Applications are now being accepted for the group entering in July or September, 1970. For information, write to Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.

The Trustees of America's oldest medical essay competition, the Caleb Fiske Prize Essay of the Rhode Island Medical Society, announce as the subject for this year's dissertation "Medical Education in the Years Ahead." The essay must be typewritten, double spaced, and should not exceed 10,000 words. A cash prize of \$500 is offered. Essays must be submitted by December 15, 1969.

For complete information regarding the regulations write to the Secretary, Caleb Fiske Fund, Rhode Island Medical Society, 106 Francis Street, Providence, Rhode Island 02903.

Morbidity Incidence Report

(Continued from page 342)

The rubella virus vaccine will *not be recommended* for pregnant women. It is not known to what extent infection of the fetus with attenuated virus might take place following vaccination, or whether damage to the fetus could result. In addition, *routine* immunization of adolescent girls and adult women will *not be recommended* because of the danger of inadvertently administering vaccine before pregnancy becomes evident. In these latter situations, each case will need individual consideration.

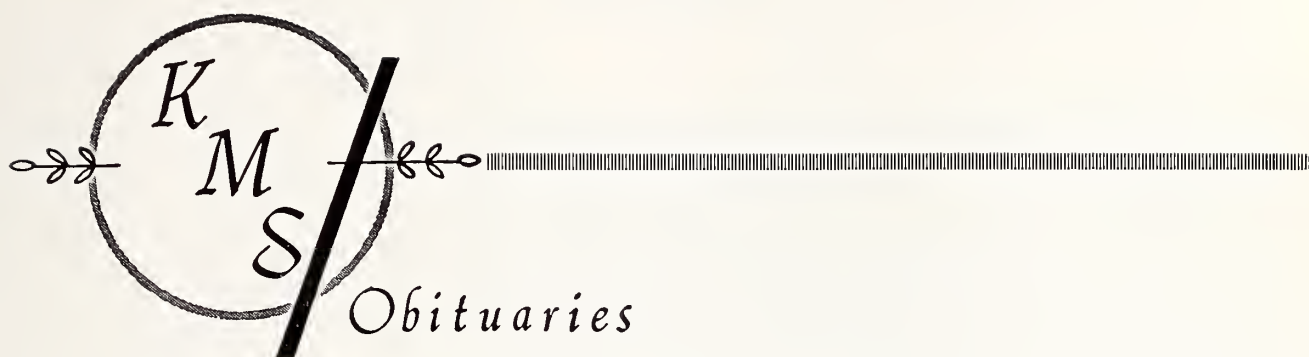
Additional guidelines for use of rubella vaccine will be published subsequent to licensure and availability of this vaccine.—SOURCE: Prelicensing Statement on Rubella Virus Vaccine, Advisory Committee on Immunization Practices, USPHS.

Book Reviews

(Continued from page 343)

At the end of each article there is an excellent summary which is based not only on their source materials but also on a large amount of clinical experience by Dr. Adriani and his staff. It is good to see the inclusion of discussions of management of patients on alcohol, glue, psychotropic drugs, tranquilizers, etc., as they are becoming a larger percentage of our practice.

The book contains no sketches or illustrations. I would like to see included some actual techniques of anesthesia used by his group, together with a sharply critical evaluation of it so the rest of us might compare our practices. This is an excellent book not only for the resident staff, but for all of us in the general practice of anesthesia.—W.O.M.



RICHARD E. BALDRIDGE, M.D.

Richard E. Baldridge, Kingman, died May 29, 1969, at St. Francis Hospital, Wichita. He was 57 years old.

Dr. Baldridge was born February 26, 1912, at Caldwell. He received his doctor of medicine degree from the University of Kansas School of Medicine in 1937. After completing his internship, he established his practice in Kingman in 1938. He served in the Army Medical Corps during World War II. He was a member of the Presbyterian church, the Veterans of Foreign Wars, and until recently had served as county health officer.

He is survived by his wife and daughter.

CLARK W. ZUGG, M.D.

Dr. Clark W. Zugg, 83, died May 9, 1969, at his home in Great Bend.

He was born at Bantam, Ohio, on April 23, 1887. He received his medical degree from the University of Illinois School of Medicine in 1913. He had been a resident of Great Bend since 1914. Dr. Zugg was a veteran of World War I. He was a member of the Presbyterian church, the American Legion and other civic and fraternal organizations.

Surviving him are his wife and son.

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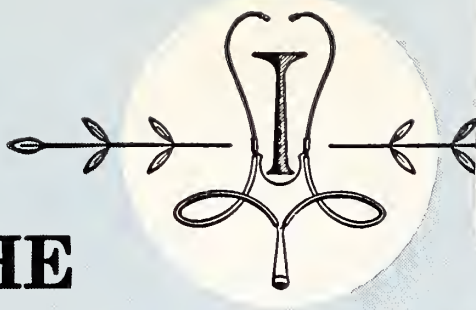
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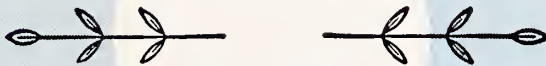
OF THE

L Kansas

Medical

Society

AUGUST
1969



VOL LXX
NO. VIII



*Dear Doctor,
You made me
what I am today—
a whole lot
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The JOURNAL of the KANSAS MEDICAL SOCIETY

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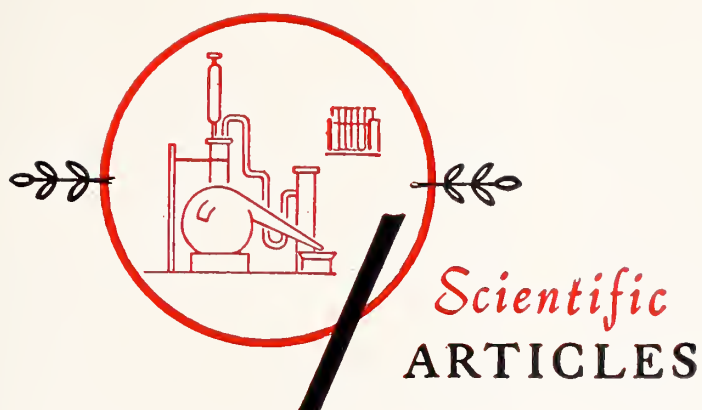
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Health Care—

—*In the Inner City*

JOHN L. S. HOLLOMAN, JR., M.D.,* *New York, New York*

THE PACE OF CHANGE is quickening on all fronts in our society today. Nowhere is the pace more slow, the forward progress less evident, and patience more nearly exhausted, than in the inner cities or poverty ghettos of America today. The tragic health gap between the poor and the affluent as indicated by our national health statistics should be cause for concern, if not shame, by all of us who share the responsibility for the delivery of health care in the United States.

The American Dream remains an almost impossible dream for too many people in this, the most wealthy and powerful nation the world has ever known. For too many people, especially the blacks and the nonwhite minorities, the dream is a living nightmare of poverty, deprivation and disease. Fully 57 per cent of all black families in this country are living at the poverty level as defined by the Department of Health, Education and Welfare. But among the poor, disease is almost color blind and white and nonwhite alike share a disproportionately high incidence of disease and death. Disease, the handmaiden of poverty, strikes these hapless people with an almost unbridled fury. And, as the planners and deliverers of health care we each play a role in this tragic opera entitled, "Health in the Inner City, USA."

Among 30,000,000 people in this country, hunger and malnutrition contribute to the litany of statistics which give us a graphic presentation of the shocking state of health affairs in our nation. It is a tragic fact that 75 per cent of all cases of mental retardation are found among the urban and rural poverty areas. Evidence suggests that prenatal malnutrition often leads to prematurity and an increased incidence of mental retardation. The President's Committee on Mental Retardation has stated: "A child in a low income family is 15 times more likely to be diagnosed as retarded than a child from a high income family.

"The incidence of premature births, with resulting higher risks to the infant, are almost three times as great among low-income mothers.

"The Selective Service System rejection for intellectual underachievement is 23 per cent nationally but soars to 60 per cent and more among groups whose members are largely from low income areas."

The committee concludes that an attack on poverty will also strike the root causes of mental retardation in the rural and urban slums of our nation.

Statistics at best can only delineate the bare perimeters of poverty. The sensations of being poor are scarcely comprehensible to the 170 million Americans who are not poor: the hollow-bellied, hand-to-mouth feeling of having no money for tomorrow; the smell of wood smoke that hangs over Southern

* Presented at the Annual Meeting of the Kansas Medical Society, Statler Hilton Inn, Salina, Kansas, May 6, 1969.

shantytowns—romantic to the suburbanite, but symptomatic of scant heat and pinchgut rations to the poor; the bags of flour delivered by a well-meaning welfare agency, in a household that has no oven; the pervasive odor of human urine and rat droppings in perennially damp walk-ups; the bite of wind or snow through a wall of rotten bricks and no hope that the landlord will repair the crack. Poverty is the certainty of being gouged—particularly by one's own kind. For if the poor share anything it is oppressors: credit dentists and credit opticians; credit furniture stores and credit food markets where for half again as much as the affluent pay, stale bread and rank hamburger are fobbed off on the poor. Poverty spells the death of hope, the decay of spirit and nerve, of ambition and will.

"Poverty is a psychological process which destroys the young before they can live and the aged before they can die," says Yale psychologist Ira Goldenberg. "It is a pattern of hopelessness and helplessness, a view of the world and oneself as static, limited and irredeemably expendable. Poverty, in short, is a condition of being in which one's past and future meet in the present—and go no further."¹

In addition to hopelessness and helplessness there is a deep and overwhelming feeling of powerlessness. The problems of urban ghettos continue to worsen as middle class white America abandons the city and flees to suburban areas.

The increase in air pollution, water pollution, automobile accidents, and environmental hazards such as industrial trauma and crimes against the person, all seems to strike those who find themselves dwellers in the inner city. The building codes are seldom enforced with vigor and inhabited buildings are allowed to decay, literally, before one's eyes. Rats and roaches are often the daily companions of infants and children. Flies grow fat and lazy on the uncollected garbage which too often litters the streets, yards and vacant lots in Inner City, USA. The crowding of many people into housing intended for a few adds to the misery and spreads diseases more easily among those who have no place else to go.

Is it any wonder that among the industrialized nations of the world the United States ranks fifteenth in infant mortality? This low place on the international health scale is due at least in part to the high incidence of infant mortality in the inner city.

In recent Senate testimony, Dr. Charles Lowe, chairman of the American Academy of Pediatrics Nutritional Committee, testified: "Were we to en-

sure that infants, children and pregnant mothers of this country receive adequate nutrition we could interrupt this morbid cycle and remodel the future. Infant mortality and prematurity rates would decrease. With this there would come to our children improved growth and development, certainly of body and probably of intellect. Educational accomplishments and achievement would improve and with this, economic status would rise."

Fifteen per cent of the poverty population, in a recent national nutritional survey, had abnormally low hemoglobin levels and are candidates for medical treatment, according to Dr. Arnold Schaefer of the U. S. Public Health Service. The same study indicated that the dental condition of the poor is unbelievably bad, with more than 50 per cent of the poor in need of major dental repairs. There are, in fact, many counties in America where the black and poor receive no dental care at all, even though these services are theirs by legislative mandate.

In the eastern part of our country the largest minority groups are the blacks and Puerto Ricans, with many other small racially designated groups. West of the Mississippi, however, the Chicanos are the leading minority group and they share the same miserable health conditions. It must be said, however, that the American Indian is the most deprived health group in our country. There is a 23-year gap in the life expectancy, at birth, between the Indian and the national average.

Endemic in America, there is a disease which is both chronic and resistant. It made its appearance in America when the first black men arrived at the Jamestown, Virginia, colony in 1619—a full year before the Pilgrims of Massachusetts—and became associated with the development of legalized black slavery in this country. The disease of white racism was described by the National Advisory Commission on Civil Disorders in its 1968 report as the number one problem facing this nation, and polarizing it "into two nations, separate and unequal, one black and one white." My only disagreement with this statement is simply that we have never been one nation, and this polarization is merely a focusing on the reality of the situation.

The abrasive edges of white racism and the impatience of blacks demanding meaningful change come together forcefully in Inner City, USA. It is here that the explosive forces of the currents and counter-currents of our society are aswirl in a manner that is unprecedented in our history. Any consideration of the inner city must take these facts into the account which is being rendered.

The cry of Black Power is most threatening, I think, because it implies a disturbance in the status

1. A Nation Within a Nation. *Time Magazine*, Vol. 91, No. 20, 5/17/68.

quo. Things will never again be as they once were in the good old days. It implies that the inner city will demand an equal share of power. It implies that the institutions which serve the black community must become more responsive to its needs. It implies that the health facilities, the educational facilities, the transportation facilities, the public utilities, the police and fire departments, and city hall, itself, must respond to the community and not to vested interest groups and the power brokers. Properly used, Black Power means a constructive force for the good of all society.

Health services and facilities of the inner city are fragmented, poorly placed, antiquated and perhaps best described as carry-overs from a bygone era most noted for its gas lights and the horse and buggy. These are usually clinics or emergency rooms provided for the poor because, by and large, the private physicians have joined in the flight to the suburbs. Many of the physicians who have remained in the inner city have done so because they were too old to move, or feared the possible competition from younger and perhaps better trained colleagues. Regardless of the reasons, the Inner City, USA, is characterized by an acute shortage of physicians, even in cities where the physician-patient ratio is favorable such as New York, Chicago and Detroit.

Medical care in the inner city is provided, in most instances, in the following way. A poor person coming to a clinic or charity hospital is confronted with a series of applications which are unintelligible to him; he meets people who cannot remember his name (and the poor are so very dependent on close social contacts)—long waiting periods for services, inadequate transportation facilities, and crowded, dirty, inferior clinic and hospital facilities. Like all other patients he is frightened and embarrassed. In addition, he is probably unsophisticated in medical terminology and procedure; he may be superstitious, as well. Above all, he is distrustful, as well he should be, of a system which has always operated to his disadvantage.

Many physicians do not realize that poor patients are very aware of being used as teaching material. They are fearful of being used for experimentation and this is a factor which often delays a decision to be hospitalized. They know—and must accept—the fact that if they are to receive any medical care at all, they may be required to barter their only possessions—their lives and their human dignity. I am certainly in favor of utilizing medically interesting cases for teaching purposes, but I feel that there are at least as many medically interesting private patients as there are charity patients. I believe they should be used in a like manner for educational purposes, with their consent.

Medical care is costly and without some form of medical insurance, even middle class Americans cannot afford more than the most meager and infrequent episodic care.

A recent Harris poll has shown that contrary to popular opinion the poor, in spite of the obstacles to obtaining good health care services, place health care as their number one priority item. Until very recently it was believed that the poor placed housing, employment and education higher than health on their list of priorities. The often quoted statement of George Kimball has been verified by opinion-takers in the ghetto: "It is bad enough that a man is ignorant for it cuts him off from the commerce of other men's minds. It is perhaps worse to be poor, for that condemns him to a life of stint and scheming in which there is no time for dreams and no respite from weariness. But what surely is the worst, is that a man should be ill for that prevents him from doing anything much about either his ignorance or his poverty."

Our welfare system is an archaic and punitive descendant of the Elizabethan period, and our present system of charity medicine for the poor is a philosophical carry-over from that less enlightened period of our history when men still believed in the divine rights of kings.

Our division of medical services for people along economic lines represents a philosophical hurdle which must be overcome if we are to correct the obvious defects in our present health care delivery system. Health care is a right for all people, not a privilege. To state that everyone has the right to life and at the same time to deny his right to equal and quality health care is to be exceedingly myopic.

Three hundred and thirty-three years before the birth of Christ, Aristotle wrote: "Health of mind and body is so fundamental to the good life that, if we believe that men have any personal rights at all as human beings, they have an absolute moral right to such a measure of good health, as society, and society alone, is able to give them."

We cannot continue to have health care for the rich and health care for the poor, and "catch as catch can" care for the people in the middle. Unless we have a health care delivery system designed to meet the needs of all people on the basis of illness or prevention, not on a basis of the ability to pay, we will remain in difficulty. We need, and must have, a first class, high class, one class system of health care which all Americans will be proud to call their own. Such a system could go a long way to making the American Dream a reality for all people and not just for the few. President John Kennedy stated, "If a free society cannot help the many who are poor, it cannot save the few who are rich."

We must re-evaluate ourselves, as human beings and physicians, in the light of today's demands. Our professional concerns must never outweigh our concerns as human beings. Why should physicians be more human—perhaps the word is humane—than other people? We are always so close to tragedy and pain and so perhaps instead of becoming inured to it, we should become more sensitized. It would be easier to plan meaningful programs if we were able to really empathize and put ourselves in the patient's shoes. We must seriously consider our role in the present system in which we profit, handsomely, on the illness of our fellowman. We profit from people being sick more than from their being well. (In old China, the patient paid his physician as long as he remained well, and did not pay while he was sick, for he felt that the doctor had not done his job well.) Simply because this is the way in which things have been done in the past does not mean it will always be valid under all circumstances. Under this system the physician who sees the largest number of patients, charges the highest fees and keeps them sick the longest, is the most successful physician in the eyes of our materialistic society. A high fee is often mistakenly equated with the quality of care.

Some of the health care in the inner city is delivered with dignity, empathy, consideration and understanding. But too frequently it is rendered to patients as a special favor from a man who mistakenly believes that his MD degree means M. Deity. If we, in the profession, cannot make meaningful changes to bring quality health care to all of the American people, then these changes will be made for us by others. Real change will not be without some sacrifices of prerogative and adjustments will have to be made, but "business as usual" simply cannot continue, for although it has financially rewarded the health professional, it has not met the needs of our patients.

There is no single approach to the creation of a new and relevant system of health care delivery. This is especially true in the provision of medical services to the poor in urban and rural settings.

If we *must* provide a separate system of care to the inner city—which always seems implicit in so much of our discussion concerning health care to the inner city or provision of health services to the ghetto—then I hope it will be such a wonderful, comprehensive, smoothly administered program that the non-poor will be clamoring for the same thing. My long range goal for the delivery of health services to the American people is a unified, comprehensive, national plan which will supply the consumer of health services with quality care, accessible care and equal care. There is a great deal of apprehension,

on the part of traditional health planners and providers of service, when the conversation turns to a national system of health care. Perhaps this is based on unfounded fears that some oppressive federal plan patterned after the European experience will be superimposed upon the American practice of medicine. I, personally, do not believe that this will be the system which we will eventually adopt. Our economic system, coupled with American creativity, will produce a health care delivery system which is best suited to our way of life.

Please do not misconstrue my preceding statements as an endorsement of any plan conceived by the American Medical Association or the federal government which will only continue in an updated format our present delivery system. While there are a variety of current fiscal mechanisms which can be utilized, I do not believe that they can be appended to the delivery system, or non-system, currently in operation. Our experiences with Medicare and Medicaid have demonstrated that it is essentially useless to simply pour more money into a system that clearly is in need of drastic revision and can only respond in sluggish ways to the increasing demands which are being placed upon it.

An entirely new system is needed to strengthen patient care at the primary level and, at the same time, a system in which health, not illness, is emphasized. There is little doubt in my mind that preventive medicine must assume a larger role in the practice of medicine. I am not implying the curative aspects of medical practice do not have a central place in our system. We have become increasingly more disease oriented since technology has expanded our knowledge. There must be more effort directed at preventing disease and this will certainly expand medical horizons. We would have to become more concerned with the prevention of environmental diseases and this can logically lead us to the environmental problems of the inner city. Programs designed to prevent lead poisoning, nutritional deficiency disease, infant prematurity, contagious diseases such as tuberculosis and drug addiction should all be a part of our thinking and future planning. These programs cannot be continued in the traditional mold for they have proven to be unsuccessful. Preventive and curative approaches must be made relevant and available to the inner city populations.

We have, increasingly, in the past 30 years turned away from general practice toward specialization. Our whole system of medical education is geared toward specialization, and by inference general practice has been denigrated. Our students have traditionally had their clinical experience with the clinic or poor patient and have been subtly taught that there *is indeed* a difference between private and ward pa-

tients. Medical school curricula, as we all know, have been composed of a series of rote memory courses and clinical practice. The medical student of yesteryear was concerned with simply getting through school and embarking upon his professional career. At least this was the motivation of many of my own generation, some 25 years ago. Fortunately, many of the medical students of today have changed the whole face of medical education. They have pointed out the need to make medical study once again a humanistic discipline as well as a scientific one. They have recognized how badly the schools were preparing them for life outside of the university setting. "Education in a vacuum" is the term many students have used in demanding changes in their curriculum. They have helped university medical centers to recognize a responsibility not only to teach but to serve the communities in which they are located. Medical students all around the country have participated in community health programs, on a summer and year-round basis. In many medical schools the students have pressed the administration forcefully on the issue of black and minority group admissions.

I think we are beginning to see the emergence of a more socially aware "new physician." Like youth everywhere in our nation today, the young physician is questioning the old system and traditions. From personal contact with many of these young professionals I can state that there is an increasing rejection of our present system of health care delivery and an intense dedication toward finding newer and more equitable forms of delivery. I believe that these new physicians who have had more social exposure than we, and who are becoming interested in assuming the role of primary and community physicians, will have a great impact on medical practice in the inner city.

I mentioned black admissions as part of the new look in medicine and I should like to enlarge just a bit on this issue. If you are connected with a university faculty then this will be a familiar discussion to you. Almost every medical school in America is trying to recruit qualified black students today. There is a disproportionately low number of black physicians in this country. Of the 315,000 physicians in America, approximately 6,000 are black. In the history of American medicine there have been only some 13,000 black physicians all told. Insofar as I know, and depending on whose figures you use, there are only five to seven American Indian physicians practicing today. I think it may be useful at this point to speak directly to the implications of my previous statement. The National Medical Association, predominantly Negro, came into existence in 1895 because the American Medical Association

practiced racial exclusion which has persisted until today, despite its 1968 stance to correct racially discriminatory practices in local and state medical society components of the national body. If this seems a harsh indictment, I should like to pose these questions for your consideration. Why are there no black physicians in power positions at national levels of health policy making? There is presently not a single black member of the AMA House of Delegates, and there has only been one, Dr. Peter M. Murray, in the entire history of the American Medical Association. Why is there not a single black medical school dean in the 101 medical schools, outside of traditionally Negro Howard and Meharry? Why is there not a single black dean in the 17 schools of public health?

The opportunity for a white student to become a physician is 1 in 650 and for a black student that figure becomes 1 in 5,000. Of the almost 9,000 medical school graduates last year, less than 300 were American Blacks. There are many medical schools which now are actively engaged in recruiting black students, as I mentioned before. To this I can only say: It is a proper and right response and in the spirit of the affirmative action which is necessary to correct past discrimination. Black admissions have raised many issues—some of them beg the question and sidestep the real problem. Socially and educationally disadvantaged students cannot be judged by the same admission standards as other students. This would be, and has been, an effective screening-out process affecting poor and culturally different candidates. What we must be interested in is the capability and the potential each student has to become a good doctor. I wholeheartedly advocate the changing of admission standards as a screening-in mechanism for our black, brown, red and poor students who aspire toward medical and health professional careers. I believe that schools and universities should indeed change admission standards, but with the clear understanding that the students *will graduate* and at the acceptable level for all students at that particular institution. It may be that schools will have to provide remedial courses, additional faculty and perhaps a longer course of study, but these steps are being taken in many universities already.

I believe that everyone who wishes to pursue a medical or health career should have the opportunity to do so regardless of color, race, religion or economic status. I am in favor of full, outright federal or state support to finance medical education. We subsidize agriculture, mining and oil depletion. Why should we not make the same investment in the training of our health professionals and at the same time, in the nation's health?

Many students and schools are now partially assisted by federal funds, although often this takes the form of research money which must be "diverted" to education. Students, medical schools and medical faculties should be adequately assisted with public funds.

At a conference on Ghetto Medicine in San Francisco, I was asked, "Will newly trained black physicians and health professionals return to the inner city? How can they be encouraged to do this?" Traditionally the majority of black professionals returned to the black community because they could go nowhere else. They were excluded from the mainstream of their profession, just as they were excluded from the mainstream of American society. An individual in this society should be free to practice, work, and live where he chooses. Therefore, I do not advocate the training of vastly increased numbers of black health professionals merely to fill the health manpower gaps in the black community, but instead to meet the health manpower needs of our country. However, I do believe that many of our young black professionals will return to the inner city, freely and out of a growing and earnest desire to contribute to the final emancipation of the black people in America. This generation of young black men and women is a source of pride for me, as a black man and an American. They are truly helping to change the face of our society. There is a growing racial cohesiveness in the black community and it is no longer so divided along class lines. Black people are "getting together" as the ethnic expression states, and our young people are returning home with their skills and talents to be used for all black people and not as an escape route into the white world.

Black physicians and health professionals and a whole new variety of health workers will be engaged in delivering health services to the inner city. This is not to say that whites will be excluded, but they will have to face the reality that they will not be "running the show" in black communities. They will be members of a health team delivering comprehensive personal care in an urban setting where the community may be in control.

The present system of episodic, fragmented and impersonal care in outpatient departments and emergency rooms is totally unsatisfactory to inner city residents. Each community will ultimately have to decide upon its own plan which will best meet the needs of that community. There are a variety of plans which may be chosen to unify the delivery system within the inner city, but these plans must include changes which also affect other aspects of ghetto life. Availability of health services represents a problem for many areas within the ghetto. Hours may need to be changed, transportation facilities

made more available. Present health facilities may not be conveniently located. Neighborhood health centers are the best answer for many communities. These should be comprehensive in nature, offering the patient a variety of services in addition to medical care. It is possible to locate clinical laboratories and routine rehabilitation facilities in these conveniently located health centers. Presently, existing centers such as these have had back-up hospital and medical center facilities which provide continuity of care for any given population. Urban transportation considerations must be met in planning in order that patient, health center and hospital are linked in a convenient and inexpensive manner. Provisions must also be made to include child care, within the center itself or in the community, for patients who have young children and no babysitting facilities of their own. We may also set an increase in the number of university medical centers or community hospital satellite health centers to provide outreach into the community. In many areas we are seeing an increase in the establishment of group practices, many on a prepaid basis, in inner city areas. This may become the prototype of future practice everywhere, particularly when the payment for medical services is unified and rationalized. The provision of medical and health services must be logically based upon health needs and not illogically dispensed upon the individual's ability to pay.

All physicians who practice in ghetto areas must be included in the total health plan for the community, whether they practice in a group, staff a health center, or continue as solo practitioners. Too often in ghetto areas individual practitioners or generalists are lacking in hospital privileges and in this way they are successfully cut off from the mainstream of practice. In New York City, there are some 7,000 physicians without any type of staff privileges. Many of them practice in poorer neighborhoods and are the backbone of private practice in the ghetto. Programs of continuing medical education must be made available to the general practitioner so that he can become an effective partner in this health alliance. Every physician should have staff privileges. This has not always been possible for the older black doctor and he has had to leave his patient at the hospital steps in the care of another private physician on the staff, or in the care of the house staff. This has been a hardship for both patient and physician for it has severely impinged upon the relationship which they may enjoy. The increasing trend toward specialization has tended to cut general practitioners away from hospital work and this trend must be reversed. If universities, medical centers and community hospitals are earnest about providing good care they must help to revitalize the

generalist by making him a full partner in their planning.

Obviously, the speeded-up comprehensive health plan for any community must include provisions for the training and utilization of additional paramedical personnel. The health industry is the third largest in our nation today and projections for the next five- to six-year period predict that it will be the number one employer in the nation, outside of the federal government.

A whole new variety of health workers is needed to meet the increased demands of our population. In many communities these new personnel can be drawn directly from the local population. Health technicians and community aides can greatly facilitate the delivery of services to large urban populations. It is necessary to include community residents in the delivery system because they are tuned in on the community wavelength. None of these new health careers should be locked into dead end streets, but must provide educational opportunities which make lateral and upward mobility a reality. New health workers must be given an opportunity to advance into the upper echelons of health service provision if they have the inclination and capacity to do so. This will inevitably require fundamental changes in job qualifications, standards and state licensure.

I believe that we will begin to see a substantial increase in the training and utilization of physician assistants and nurse clinicians, which will answer some of our manpower deficiencies. This must be an across the board measure which will affect all communities—urban and suburban—rich and poor—alike. I am in favor of the use of medical assistants *only* if they become a universal part of the delivery system. Physician substitutes for the inner city are totally unacceptable.

There is another driving force in large urban centers today which focusses around community control. It has largely centered about educational issues, particularly in New York City, within recent months. But this issue is spilling over into the health services area. Community control is the accepted way of life in most areas of our country, except in ghetto or poverty areas. This has been a major factor in the increasing feelings of powerlessness in black communities. The schools, social agencies, housing, and even health facilities are operated by forces outside of the community. Often these forces are unresponsive to the real needs of the community and, in fact, have never bothered to listen for the community's voice.

There are some changes in this regard, largely due to legislative mandate which specifically states that there must be consumer representation on health

advisory councils. However, as people begin to deal more intimately with the establishment they become more acutely aware of the need to control their own institutions in order to effectively serve their individual communities.

I believe that as health providers we must be responsive to our patients' needs in more than simple medical care terms. The concept of community control and participation—in fact, partnership—should not threaten or anger professionals. We frequently speak of a partnership for health, but what is our definition of a partnership? Is it like the partnership between horse and rider, and who can honestly liken the physician, in today's seller's market, to anything but the rider?

We may learn a great deal about the delivery of health services if we stop to listen, and then act as part of a health team. Certainly in the past physicians did head the team and covered the whole sphere of health care. But today's world has made new demands and our changing way of life has produced new professionals who are also concerned with health. The urban planner, the environmentalist, the data systems expert and the public administrator concerned with health planning fall into these new categories of health-concerned professionals. There has never been training in medical school which has prepared physicians for roles as health educators or health planners. Physicians have been traditionally educated to recognize, treat and cure illness, but we find that organized medicine is deeply involved in the highest levels of health planning. We may have developed expertise in these legislative and administrative areas by "on-the-job training," but I seriously question if this has all been done in the best interests of the patient or the community of patients. I think we are on unsteady ground if we deny the charge of professional self-interest.

We must be prepared to truly accede to the needs of patients, in the broadest interpretation; to give up some of our conveniences and to make room for other types of professional health planners, and especially for the indigenous planner—the consumer of services. No one that I know who is in favor of community control of health services has it in mind to direct physicians in the treatment of illness. Medical judgment will not be abridged and the physician-patient relationship will remain intact, and may even be strengthened.

I must emphasize that inner city health care must be made more relevant to the *needs as perceived by the community*. The expenditures of large sums of money for cardiac transplantation and the development of exotic medical care systems for space travelers may be good for international propaganda and

(Continued on page 358)

Reorganization of Medical Practice

Its Influence on Patient-Physician Relationships

FRED I. GILBERT, JR., M.D.,* *Honolulu, Hawaii*

NO PHYSICIAN in the United States, no matter what he practices or where he practices, can help being aware of the powerful surge of change on the medical scene over the last few years. Never has there been more said and more written in the field of medical care than there has been over the last five years. Politicians, economists, insurance experts, hospital administrators, labor leaders, industrialists, educators and even patients and physicians have all had their say. The passage of Medicare has been followed by a series of three-letter health laws, the RMP, the OEO, the CEP, and the CMP. The physician has been repeatedly told that the passage of each new bill will have an even greater influence on the practice of medicine than its predecessor or any previous single piece of legislation. We neglect our patients while sitting in committee meetings designed to work out ways to ease the shortage of physicians. In spite of all this massive effort, the problem worsens, programs overlap programs, monetary bait captures a few but frightens many. The problem, simply stated, is that large numbers of people in this nation are economically, culturally and geographically isolated from good medical care. I define good medical care as physicians define it in 1969. The patients would define this differently. Systems analysts and experts in cost benefit ratios would define good medical care in still different terms. All might be right with their own definition.

Every major change in science or art must be preceded by a change in philosophy. This philosophical shift in American medicine is really a very slight change from the philosophy long held by physicians. We have said that we will take care of anyone who requires our services regardless of race, color, creed or even economic status. This has been more recently re-stated that good medical care must be available to all citizens as a basic human right. This is, of course, not the same as the previous statement, but while intellectually we might have trouble accepting this, practically we cannot disagree. The real shift in

philosophy, then, is that good medical care must be available to all citizens no matter who they are or where they live, whether in the hills of Appalachia, whether in the slums of New York or in the back lanes of Nanakuli. This, of course, changes the whole picture; no longer can I sit in my office on King

The practice of medicine in response to external and internal pressures has undergone considerable organizational change over the past decade. The rate of change continues to accelerate. The shifting roles and responsibilities of the many people involved in patient care has drastically changed from the more direct one-to-one patient-physician relationship of the past. This new and changing relationship poses many questions, some of which are being answered.

Street in Honolulu and tell the world that I will take care of all who come to me. In reality, I had already stopped seeing all who sought my care because of state laws that make it possible for medically indigent patients to receive treatment at certain hospitals but not in my office. True enough, I might see the same patients at no charge during my stint in the hospital wards or clinics, but this is really not the same as a free choice on the part of the patient. But beyond this technicality it now becomes my responsibility—yours and mine—to see to it that all members of our community and our country are not denied medical care for any reason, even if that reason is the price of cab fare. This makes an entirely new game with a new set of rules. How do you get physicians and other health workers to move from group practice in a pleasant university town with good schools and other cultural advantages to a solo practice in a rundown office in a ghetto area with a high crime rate and poor schools? The need of a community for good medical care is a strong compelling force, but by itself is not enough. The answer, of course, is that medicine does not and cannot stand alone within a community. It must properly be con-

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sidered as an integral part of the total community, its housing, its schools, its parks, its art and culture or a lack of these things within the community.

If the problem, then, is the isolation of the consumer from the product, the patient from the health services, and need has thus far not resulted in a solution, what then are the leverage points in solving the problem?

1. **ECONOMICS**—Making available funds for medical care through private and governmental insurance and other sources may attract some physicians to areas with high needs for health services. Welded together about such economically based health services are such plans as the Health Insurance Plan of New York, Kaiser Plan, and others.
2. **ORGANIZATION**—The removal of some of the professional and cultural isolation of health workers, including physicians who would practice in high need communities, requires effective affiliation with other health workers in universities and clinics. The more complex organization of health services also requires a much higher level and supply of medical management personnel and techniques than are presently available.
3. **EDUCATION**—This is probably the real key. Schools of health sciences must re-orient teaching away from the almost exclusively organ-disease centered curriculum to a patient-society oriented curriculum. This is difficult because professors are no more eager to throw away their lecture notes devoted only to disorders of organs than practitioners are to adopt new approaches to patient care. However, the students will soon insist that they do precisely this, just as patients will insist that practitioners develop more effective systems of health service delivery.

What will be the organization of medicine then? First of all, the increase in group practice is inevitable. There are too many advantages to both physician and patients, to have it otherwise. The group practice I am speaking of bears only a superficial resemblance to group practice as we know it, where physicians are practicing in much the same one-to-one manner as their grandfathers did. An effective group practice means more than the sharing of overhead, administration, accounting, and laboratory services, and more available consultation. It means a full realization of the potential of an outpatient-based comprehensive medical care system.

Secondly, the cost of medical care will be more broadly spread over groups of people and periods of time by prepayment capitation plans. I can see no real alternative to this either.

Thirdly, there will appear shortly on the medical scene a new cadre of health workers, many as yet un-

named. Assistant physicians, diagnostic technicians, surgical technicians, and a whole series of aides are a few of the people who already are finding their way into areas of medicine with desperate need for these people.

With improvement in industrial design, automation, and increasing use of the computer, the technical aspects of medicine are made easier. The physician who insists on having a purely technical relationship with patients runs a very high risk of being replaced by another less expensive technician or a machine. A physician who is functioning as a machine deserves to be replaced by one. A whole series of diagnostic and therapeutic procedures now done largely by physicians are beginning to be done by non-physicians. These range from a simple procedure such as taking the patient's temperature to more complex activities as interpreting EKG's, performing cardiac catheterizations or proctoscopic examinations. Here in Kansas Lewis and Resnik have already demonstrated that a nurse can manage the care of certain phases and aspects of chronic diseases better than physicians. Nurse-managed ambulatory clinics with patients receiving strong supportive therapy by the nurses apparently result in less disability from the chronic disease than similar clinics run by internists.

We, then, must think not only of patient-physician relationships but patient-machine relationships (or interfaces), patient-nurse relationships and patient-paramedical relationships. This whole matter of the patient-physician relationship is extremely important because in this relationship is defined the physician's role in our society.

There exists between patient and physician an unwritten contract. This contract goes into effect when the patient asks the physician to take care of him and the physician, by applying a bandage or looking down the throat, indicates that he will. All of us know that this arrangement no longer holds in quite the same manner. When a patient asks such a question, whether expressed in words or not, the physician now replies—"It depends on whether or not your present or future illness matches my speciality or subspeciality." This relationship between patient and physician for several million people in the U. S. has been formalized by written contracts. Groups of physicians, through an insurance plan, agree to take care of certain specified diseases for a certain period of time for a prepaid fee.

The group assumes the responsibility once held by the individual. The "I" in the unwritten contract becomes replaced by the "We" in a written contract. The relationship then becomes a patient-organization one in which the organization, not the patient, decides who is to treat him. Patients often find that the technical aspects of health services are

easier to organize into a system than are the professional or human aspects. They seek more and deserve more than technology.

There are other implications to this relationship which in its definition of the responsibility of a physician to a patient indicates a job description of the physician. The schools of medicine use such a job description of their faculty members as guides for admission of students to medical schools and around such job descriptions build their curricula. We therefore continue to create a large excess of physicians trained to care for horizontal patients in hospital beds.

In contrast, our education of physicians and other health workers to care for the one hundred ambulatory patients for every hospitalized one, is hopelessly inadequate. A few years ago perhaps the education of a physician as a junior scientist may have been defended on the grounds that we had to pound all of those facts into his head in a very short period of time. The human brain was regarded as a poorly designed structure incapable of storing all the medical facts appearing in the tons of medical journals published every year. We fragmented medicine into specialties and subspecialties largely because of what many regarded as a gross error in brain design. The truth is that the human brain is quite a remarkable structure, clever enough to provide its owner with books, and more recently computers, as storehouses of knowledge. The physician then is freed to function as a scientific humanist to creatively analyze the biological maladjustment responsible for his patient's disease. The physician must be prepared to combat the cause of disease whether it lies in his patient's environment, his society or within himself.

The physician of the near future must function as a technician and accept this role, or he must function as a true professional creating new health workers where needed and organizing about him the new people and technologies to improve the care of his patients. If there is thoughtful consideration of the patient as well as his disease, patients will accept these new interfaces and all participants, including the physician, will be the better for it.

Health Care in the Inner City

(Continued from page 355)

the enhancement of personal reputations of a few medical pioneers. But, it is a source of frustration for those to whom the most basic medical care remains a promise. Economy at the expense of health care for the inner city is poor practice and will not be endured much longer. If we are to survive as a nation, we must rearrange our national priorities, including our health priorities. We must become concerned with total health, broadly perceived for all individuals as an equal right, without geographic, ethnic or economic considerations.

Isolation of the inner city is not the answer. The answer lies in the deliberate inclusion of all people into a well planned and coordinated health care system in which the individual patient enjoys good health in a healthy environment, *as a right*.

SCIENTIFIC ADVISORY BOARD ELECTS DR. REALS AS CHAIRMAN

At the annual meeting of the Scientific Advisory Board of Consultants to the Armed Forces Institute of Pathology Dr. William J. Reals, Wichita, was elected Chairman. Dr. Reals, who is Director of Laboratories at St. Joseph Hospital, has served on the Scientific Advisory Board since 1966. In addition to these duties he serves as National Consultant in Pathology to the Air Force Surgeon General, Secretary-Treasurer of the College of American Pathologists, and as a member of the Pathology Advisory Council of the Veterans Administration. He is also a Colonel in the Air Force Reserve with a mobilization assignment to the Armed Forces Institute of Pathology.

Dr. Reals is also First Vice President of the Kansas Medical Society.

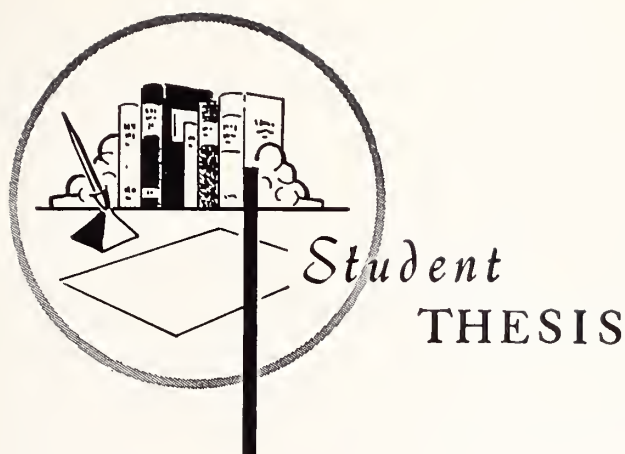
ADDITION TO MEMBERSHIP DIRECTORY

The executive office of the Wyandotte County Medical Society was not listed in the Professional Organizations on page 3 of the 1969 Membership Directory. For your quick reference you will want to add under the County Medical Societies, Executives Offices the following:

WYANDOTTE COUNTY—403 Huron Building, Kansas City, Kansas 66101

Mrs. Martha E. Hunt, Executive Secretary

913/621-1202



Acute Glomerulonephritis: A Review of 88 Cases

MARK A. FLEMING, M.D.,* *Phoenix, Arizona*

IT HAS BEEN RECOGNIZED for well over a century that acute glomerulonephritis often occurs as a sequela of a streptococcal infection, either of the skin or upper respiratory tract. In general, the diagnosis of acute glomerulonephritis (AGN) is relatively simple, a fact which is reflected by the paucity of space devoted to the subject in the recent literature. The addition of antibiotics, particularly penicillin, in control of streptococcal infections has no doubt influenced the volume of literature. Classically, the diagnosis of AGN is based on the clinical appearance of hypertension, gross hematuria, and edema one to four weeks following a streptococcal infection, together with laboratory evidence of proteinuria, cylindruria, and nitrogen retention. The diagnosis of AGN is occasionally made difficult either by the insidiousness of the disease itself or by the fact that it is readily masked by secondary symptoms. Furthermore, symptoms suggesting AGN might also be symptoms of a more generalized disorder; for example, periarteritis nodosa, allergic purpuras, renal vein thrombosis, and lupus erythematosus.

The purpose of the following communication is to present a general discussion of diagnosis of AGN with consideration of differential diagnosis and a brief review of findings in a group of inpatients of pediatric age hospitalized at the University of Kan-

sas Medical Center during a ten-year period. Clinical and laboratory parameters were studied in hospital records in order to elucidate manifestations and patterns of change which typify the disease.

Methods

AGN is known to occur with greatest frequency in the pediatric age group. Therefore, case records of all persons up to 16 years of age admitted between January 1, 1957, and January 1, 1967, were reviewed. The series included 88 patients, none of whom were below age two. The recent ten-year period was chosen in order to examine the criteria for diagnosing AGN based on the most recent clinical experience and laboratory methods. The incidence of AGN over the ten years was studied by dividing the cases according to year of admission, month of admission, and age distribution, as illustrated in *Figure 1*. In order to demonstrate the course of physical and laboratory changes in AGN a reasonably consistent time reference was required. The time of onset of first symptoms of infection, e.g., sore throat, skin lesions, etc., was well documented in most records (*Figures 2 and 3; Table 1*). *Table 1* includes data from records of 61 patients selected on the basis of a reasonably well documented history of early symptoms. *Table 2* includes all positive physical findings on admission except those clearly related to previous illnesses, e.g., paralysis following polio. A majority of the cultures represented in *Table 3* were taken on the day of admission before any therapy was instituted. *Table 4* is a survey of all 83 patients upon whom urinalysis data is available. *Figure 2* includes all ASO titers recorded in the entire series of pa-

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Fleming recently completed his internship at Good Samaritan Hospital, Phoenix, Arizona.

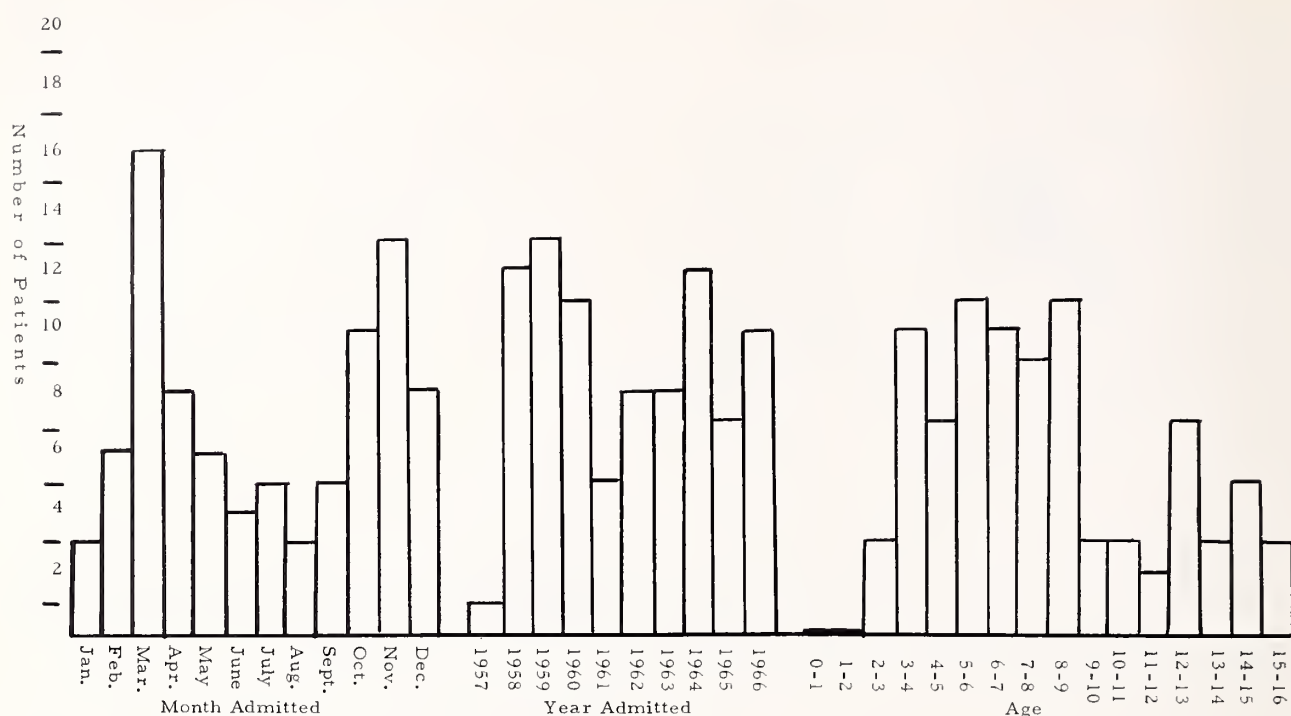


Figure 1

tients. *Figure 3* includes averages of the data on all patients during each of the five-day periods shown.

Results

Of the 88 patients whose records were studied, 58 were males and 30 were females. Although a male preponderance is reported by most authors our ratio of nearly 2:1 is higher than appears in our literature review. As seen in *Figure 1* there is a relatively high incidence of AGN in the spring months and an equally high incidence in autumn. There is no particular trend shown in yearly distribution of cases. The reason for the particularly low incidence in 1957 is unknown. Age distribution (*Figure 1*) reveals a distinct peak between ages three and nine. It is of note that no cases were diagnosed under the age of two years. *Table 1* indicates that in approximately 50 per cent of cases a history of previous upper respiratory infection was given. In 10 per cent of cases a history of impetigo or infected skin lesions was given and in about 12 per cent edema or gross hematuria was reported indicating onset of the nephritic phase. *Table 2* indicates that the most common abnormal physical finding on admission in the present series was edema, particularly facial edema. Second in frequency was elevated blood pressure, and third was "no abnormal findings." *Table 2* includes only findings on admission, thus omitting as much as possible effects of therapy. Nose and throat cultures in *Table 3* show strikingly few bacitracin-

TABLE 1
FIRST SYMPTOMS OF INFECTIONS
PRECEDING AGN

Early Symptom	No. of Patients
Cold or sore throat	30
Infected skin lesions	6
Edema*	5
Abdominal pain	4
Gross hematuria*	3
Fever	3
Earache	3
Lethargy or anorexia	2
Swelling of neck	2
Epistaxis	1
Headache	1
Tachypnea and orthopnea	1
Total	61

* Taken as signs of the nephritic phase.

sensitive beta streptococci. *Table 4* briefly summarizes urinary findings in 83 patients. It is of interest that pyuria occurred essentially as often as hematuria and that white blood cell casts appeared more frequently than other types. *Figure 2* demonstrates that peak ASO titers generally occur from 9 to 27 days follow-



TABLE 2
PHYSICAL FINDINGS ON ADMISSION

Findings	No. of Patients
Edema, all locations	56
A. generalized	6
B. facial	11
C. periorbital	22
D. ankle	13
Diastolic BP over 90	46
Cervical adenopathy	21
Pallor	11
Inflamed or enlarged tonsils	11
Infected skin lesions	10
Lethargy	8
Obesity	8
Temp. 100° F or over	6
Skin rash	5
Pharyngeal inflammation	5
CVA tenderness	3
Nasal discharge	2
Liver down over 2 cm.	2
Tympanic membranes red, swollen	2
Ascites (fluid wave)	2
Flank tenderness	1
Ataxia	1
Lung rales	1
Gallop rhythm	1
Semi-comatose	1

ing onset of initial symptoms of infection. In order to estimate the average time required for a definitely significant ASO titer to develop after onset of symptoms of infection, the number of days by which 50 per cent of titers of 500 or more were reached was calculated and found to be 24 days. No titers of 500 or more were reached before nine days and only a few after 27 days, the latter being scattered through the follow-up data. Therefore, the true mean for acute ASO elevation is probably less than 24 days. Figure 3 reveals peak erythrocyte sedimentation rate levels between 12 and 23 days and peak serum creatinine levels from 24 to 35 days. Maximal blood urea nitrogen elevation occurred on about day 15 following onset of initial infectious symptoms.

Discussion

The increased incidence of AGN in spring months corresponds with the increase in occurrence of streptococcal upper respiratory infections. The age distribution of cases in the present series is essentially in agreement with other reports. Although maternal antibodies are felt to protect infants from strepto-

TABLE 3
NOSE AND THROAT CULTURES

Organism	Nose/Throat	No. of Patients
Neisseria species	N	7
	T	27
Neisseria catarrhalis	N	2
	T	13
	T	28
Alpha streptococcus	N	2
Gamma streptococcus	N	1
	T	13
Bacitracin-sens. strep.	N	0
beta-hemol.	T	3
Bacitracin-res. strep.	N	0
	5	5
Diphtheroids	N	7
	T	3
Coagulase neg. staph	N	10
	T	6
Coag. + non-hemol. staph	N	10
	T	3
Coag. + hemol. S. aureus	N	3
	T	0
Hemophilus influenzae	N	3
	T	16
Hemophilus hemolyticus	N	1
	T	14
Pneumococcus	N	5
	T	27
E. coli	N	0
	T	2

coccal infection in the first few months of life, the present series contains no cases of AGN under age two and only three cases in two-year-olds. Among possible explanations for the latter observation are low rate of exposure to streptococci and perhaps failure of physicians to recognize and diagnose AGN in early childhood. In contrast to the present series, one author who reported on 90 cases indicated a 2.3 per cent incidence of AGN in the age group below one year with the youngest being four months. An incidental observation of interest is the occurrence of AGN simultaneously in siblings of which there are three examples in the present series.

Virtually all of the manifestations of AGN are, taken individually, characteristic of many other disease entities as well. Often there are not sufficient physical manifestations and laboratory findings to firmly establish the diagnosis of AGN; therefore, adequate history is of considerable value. The relationship between the onset of upper respiratory and impetiginous infection and the occurrence of AGN

TABLE 4
ELEMENTS FOUND IN THE URINE
(TOTAL OF 83 PATIENTS)

Element	Per Cent	
	No. of Patients	of Patients
Red blood cells	81	98
White blood cells	80	97
Protein	69	83
Hyaline casts	47	50
Granular casts	59	71
Waxy casts	16	19
Rbc casts	20	25
Wbc casts	52	63

has been well established and seems to apply reasonably well to the present series. Although only 30 patients gave a history of "cold" or "sore throat" as an initial symptom (*Table 1*) most of the patients experienced symptoms of infection within 30 days prior to onset of signs and symptoms of nephritis. Utilizing the information in *Table 1* and the time intervals between initial symptoms of infection and first signs or symptoms of nephritis, the average latent period in 52 cases was found to be 11 days. These 52 cases were selected purely on the basis of the availability of a clearly documented history. *Table 2* shows that 25 per cent of patients in the present series had no significant abnormal physical findings on admission. The question arises of the possibility that signs of the disease were missed. It is therefore essential that careful attention be given to the physical examination in the early nephritic phase. In view of the rapid course of the physical manifestations of the disease, the physician who first sees the child is often in the best position to make a diagnosis. A wide variety of physical signs may accompany acute glomerulonephritis. If more specific criteria for diagnosis of hypertension according to age group were applied it is quite certain that blood pressure elevation would be the most common abnormal physical finding in the present group. However, application of age criteria for hypertension demands standard means for measuring blood pressure in children and until such methods are widely used some cases of pediatric hypertension will fail to be recognized. Blood pressure cuffs used are often too large or too small resulting in erroneous readings. In 35 patients chosen on the basis of adequate history the latent period between the first infectious symptoms and the first recording of a diastolic blood pressure of 90 or above was calculated. The average latent period was found to be 14 days.

Obviously the actual latent period is probably somewhat less than 14 days, considering those patients whose hypertension was unrecorded for a time prior to admission. Blood pressure elevation is a commonly associated event in AGN and may be expected to occur within two to three weeks of onset of symptomatic upper respiratory infection. The average duration of blood pressure elevation after admission in the same 35 patients was 5 days. Twenty-six per cent of patients in the entire series (of 88) received antihypertensive medications including phenobarbital, hydralazine, and reserpine. Other causes of hypertension in children, both renal and extrarenal, must be considered in cases where diagnosis is questionable. Examples of extrarenal etiology are coarctation of the aorta and intracranial mass lesions. Other renal causes include pyelonephritis and renal artery anomalies.

The laboratory makes an essential contribution to diagnosis of AGN. At present probably the single most important ancillary laboratory test used in association with clinical evidence of AGN is the antistreptolysin-O titer. There have been occasional suggestions as to the possibility of AGN following non-streptococcal infections. One series included ten cases in a small epidemic of nephritis in which no rises in ASO titer occurred. However, McCrory states that more than 80 per cent of cases of AGN will show a rise in ASO and if other streptococcal antigens are tested up to 95 per cent of cases show increases in antibody titers. Undoubtedly streptococcal antibody titers will remain one of our most useful tools in establishing the diagnosis. One of the pitfalls in handling cases of AGN, however, is ruling out the diagnosis on the basis of a lack of rise in ASO titer. It is generally felt that a single titer of 333 or more is significant, though a rise in titer is of greater value.

In studies in which early cultures are obtained there is a strong association between group A beta-hemolytic streptococcal infection, particularly pharyngitis and impetigo, and AGN. Two of the factors contributing to the low culture rate of beta-hemolytic streptococci in the present series are apparent. First, antibiotics were used prior to the initial culture, or second, host defenses had eliminated the organisms by the time patients were hospitalized for nephritic manifestations. If AGN is due to antigen-antibody precipitation on the endothelial surface of glomerular basement membranes presumably antibacterial antibody can arise in the same time required for the theoretical nephritogenic antibody. Aside from the three cases in which bacitracin-sensitive beta streptococci were cultured from the throat, *Table 3* appears to represent essentially a random sample of nose and throat flora.

The importance of the urinalysis in AGN cannot

be overemphasized. Robbins reports that 33 of 83 children hospitalized for hematuria had AGN and the second most common cause was "essential hematuria." Harrison, *et al.* report that 39 per cent of 80 patients hospitalized for hematuria not of obvious traumatic origin were diagnosed as having glomerulonephritis. Cystitis was second in frequency and accounted for 20 per cent, and idiopathic hematuria for 15 per cent. Both authors' series contain numerous other less common causes of hematuria. Robbins states that hematuria is a less ominous sign in children than in adults because of the relative infrequency of bladder tumors in children. Hematuria generally appears following onset of an upper respiratory tract infection or scarlet fever heralding the presence of nephritis and is described as "cloudy," "smoky," or "rusty" colored urine. The color often changes to pink or red. Gross hematuria generally clears rapidly and microscopic hematuria clears more gradually, the former within a few days, the latter in up to several months. Cases of AGN, particularly those suspected to be developing into chronic nephritis, can best be evaluated by carefully controlled uniform urinalysis procedures or by Addis counts. Methods of performing and recording urinalysis procedures changed in the hospital laboratory during the ten years covered by this study and therefore a comparative study of urinalysis data is not possible.

Urinary casts are also of considerable significance in evaluation of AGN. Classically, red blood cell casts are found and are most significant of glomerular disruption. As illustrated in *Table 4* other types of casts also appear in the urine in AGN quite frequently. Prospective studies will be necessary to adequately elucidate the patterns of appearance of formed elements in the urine.

Protein may appear in the urine in small amounts for several months after the acute episode of nephritis. If proteinuria or microscopic hematuria, or both, persist after one year following AGN they may be taken as possible signs of chronic glomerular disease and further evaluation should be made. There are several reports in the literature of cases of glomerulonephritis and few or no urinary abnormalities. However, the simplicity and high degree of reliability of a properly performed urinalysis make it an excellent screening test as well as a valuable tool in following patients after the acute episode.

Next in importance in the routine evaluation of patients with nephritis are blood urea nitrogen (BUN), serum creatinine, and erythrocyte sedimentation rate (ESR). These tests should be done at intervals during the hospitalization as well as in follow-up. Although a more sensitive test than creatinine, BUN is labile and subject to marked fluctuation in various conditions including dehydration, high protein intake, hemolysis, etc. Creatinine is a more ac-

curate reflection of kidney function since a relatively constant plasma concentration is presented to the kidney. *Figure 3* contains averages of all values recorded of patients in the present series. Sufficient follow-up data to demonstrate the gradual fall in ESR which usually occurs over several months was unavailable. On the basis of the changes in BUN, creatinine, and ESR shown in *Figure 3*, the period of maximum renal impairment generally occurred between the 12th and 35th day following onset of symptoms of infection, usually of the upper respiratory tract. If the ESR, which is nonspecific, is not considered the duration of the maximal impairment period is essentially the same.

Numerous other laboratory and radiologic procedures are of value in diagnosing and evaluating patients with AGN, particularly in cases in which diagnosis is in question. In Harrison's series of patients with nontraumatic hematuria 12 of 57 excretory urograms (21 per cent) were abnormal, six demonstrating congenital anomalies. Renal scans, renal arteriograms, endoscopic procedures, and renal biopsy are also of value in cases of uncertain diagnosis.

The prognosis for patients with AGN is excellent. Lieberman and Donnell in a study of a large series of patients found that in 354 patients with AGN in whom previous nephritis attacks had been carefully ruled out, prognosis was definitely grave in only one patient who had probable familial nephritis. The authors reviewed 2,000 records and their follow-up period ranged from 6 months to 25 years. In the present series only one patient is known to have died from familial nephritis, four of his siblings having died of nephritis before age 21. No deaths occurred in the acute phase. One other patient was readmitted 300 days after his original admission for AGN with a recurrent episode. In the present series follow-up ranged from none to seven years with an average of 228 days and a mean of 30 days. Although chronic glomerulonephritis generally runs a protracted course, patients usually die of renal failure.

Summary

Various aspects of diagnosis and laboratory evaluation of patients with AGN as well as the natural history of the disease have been discussed. A review of 88 cases coded in the hospital records at the University of Kansas Medical Center was presented. Although the disease is usually easily diagnosed and carries a favorable prognosis careful evaluation is stressed. Such care is in order to rule out a variety of other possibly more threatening disorders and also as a guide to management which will minimize complications.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.



Fixed-Dose Antibiotic Combinations

A controversy has again arisen between the Food and Drug Administration and the practicing physician. This one concerns the National Academy of Sciences-National Research Council Drug Efficacy Review Panels' recommendations on antibiotic combinations. This group of five panels of eminent practicing physicians has labeled all fixed-dose antibiotic combinations as ineffective. The AMA Council on Drugs has taken a similar stand, unanimously passing a resolution, that the use of any fixed-dose combination of drugs is rarely scientifically or therapeutically warranted.

The drug efficacy study was undertaken by the NAS-NRC at the request of the FDA. This study is to review drugs approved for human use before the 1962 Harris-Kefauver Amendment was passed by the Legislature. The reviewers decided that the drugs would be categorized as "effective," "ineffective," "probably effective," and "possibly effective." However, for fixed-dose combinations, still another category was used. When one component was effective with respect to a given claim, but the other or others were not effective for that claim or *added unnecessary risk of toxicity*, the term "ineffective as a fixed-dose combination" was applied.

The deliberations of the panels and documentation for their recommendations are recorded in an article published in the *New England Journal of Medicine*, 280:1149, 1969. This article and the accompanying editorial should be must reading for all who treat patients with antibiotics. The article presents references to published investigations to substantiate the recommendations of the panels. The review groups stated that "although the individual active ingredients may be useful in specific entities, efficacy is no greater for the combination than for any

one ingredient and that the disadvantages of the fixed combinations far outweigh any small advantages such combinations may seem to have." It should be obvious that the proper use of one of the ingredients may require an excess of the other. It should be equally obvious that exposing a patient to two drugs which are no better than one alone increases the risk of adverse reactions.

These recommendations do not indicate the panels believe that antibiotic combinations are not useful. The panel members suggest that a few specific infectious agents as well as severe infections of unknown etiology do require the proper use of combinations of antibiotics, but these must be tailored to fit each patient and situation. Such infections also require parenteral rather than oral medication, at least initially. Our knowledge of the rational use of antibiotics has improved immeasurably since their introduction into our therapeutic armamentarium. Numerous factors such as the rate of absorption, plasma protein binding, resistance to bacterial degradation, blood levels, and urinary excretion are known to be important in the selection and proper use of antibiotics. Therefore, each physician should use the individual antibiotics according to his best clinical judgment.

Following publication of the NAS-NRC recommendations, FDA commissioner Herbert L. Ley, Jr., was deluged with letters from practicing physicians. It is shameful to note that the letters written to the FDA were 30 to 1 in favor of fixed-dose antibiotic combinations. Personal testimonials as to the worth of the fixed-dose combinations were the basis for the opinions in the letters. Recently, it has become evident that many of these letters were initiated at the behest of, and even written by, several pharmaceutical companies. Do you think economic factors

played any role in the companies' interest or was it their altruistic regard for the patient?

The drug history should be pursued just as vigorously as any other part of the history since on numerous occasions, the etiology of the patient's complaint can be traced to drug ingestion. One should also not forget that the diet may also contain potent pharmacologic agents. A hypertensive crisis in a patient receiving a monamine oxidase inhibitor who eats a variety of foods (cheese, wine, pickled herring) containing large amounts of tyramine is now well established.

A recent paper (*JAMA* 208:1909, 1969), reminds us of another type of foodstuff which may produce hypertension when ingested in excessive amounts. In this paper two cases of licorice-induced hypertension are described to add to the growing incidence of similar reports. Licorice contains a steroid-like substance similar in structure to desoxycorticosterone and aldosterone which can produce salt and water retention.

In taking a drug history, it is not sufficient to only ask the patient if he is taking any medicine. What you consider a drug, the patient may not. The women taking oral contraceptive drugs may not remember to tell you about this medication. Therefore, we always ask specific questions such as, "Are you taking any vitamin pills, laxatives, aspirin, oral contraceptives, or home remedies?" If the patient states he is taking a yellow, triangle-shaped pill, which you cannot identify, a phone call to the pharmacist where the medicine was obtained will usually identify the ingredients of the tablet. In today's era of polypharmacy and with our rapidly expanding knowledge of drug interactions, a precise drug history is an absolute requirement for good patient care. Indeed, we should give serious thought to some type of permanent, readily accessible record of all drugs which each patient is currently or has previously taken. This record should include the response to the drug as well as any adverse effects.

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

EMERGENCY PHYSICIANS FORM NATIONAL ORGANIZATION

The increasing patient loads in emergency departments across the country has underscored the need for a new type of physician—a specialist in emergencies: the Emergency Physician.

To assist this new breed of physicians the American College of Emergency Physicians was organized in August, 1968.

A nucleus of physicians—both from fulltime and parttime emergency care groups in Michigan—chartered the American College of Emergency Physicians and have organized the College on a nationwide basis.

At a meeting in Chicago on February 7 and 8, 1969, further steps were taken to widen the scope of the new specialty group. Representatives from 19 states were present to help plan the future of the College.

One of the main purposes of the College is to improve emergency services rendered to the patient. Other aims of the College are: to encourage and implement the training and continuing education of emergency physicians; to promote policy which preserves the integrity of private practice; to promote coordination of community emergency care facilities and personnel; to advance the ethical standards of the private practice of emergency medicine and surgery.

The first and most important order of business is to attract those physicians who are working, fulltime or parttime, in emergency departments across the country.

For information write: Executive Secretary, American College of Emergency Physicians, 120 West Saginaw Street, East Lansing, 48823; or the representative in this area: Harris B. Graves, M.D., Nebraska Methodist Hospital, 8301 Dodge Street, Omaha, Nebraska 68114.

KaMPAC WORKSHOP

October 12, 1969

Ramada Inn, Topeka

- **Guest Speakers**
- **Panel Discussions**

Watch for Further Announcements

Clinical Cardiology

The Diagnosis and Treatment of Lipid Transport Disorders

ROBERT I. LEVY, M.D.,* *Bethesda, Maryland*

ALL THE BLOOD LIPIDS circulate bound to specific proteins. When lipid transport is viewed in terms of these lipid transport proteins (lipoproteins) rather than in terms of any individual lipid (cholesterol, triglyceride), greater specificity and definition can be imparted to the study and understanding of lipid transport disorders.

The differentiation of hyperlipoproteinemia may be accomplished by sequential preparative or analytical ultracentrifugation. For most clinical purposes simpler electrophoretic systems are adequate. Using paper or agarose gel electrophoresis one can obtain patterns that correlate well with ultracentrifugal patterns and at a fraction of the cost. Lipoprotein electrophoresis on paper and gel is rapidly becoming a routine procedure offered by many commercial and hospital laboratories.

There are at least five abnormal lipoprotein patterns that may be associated with hyperlipidemia. Each pattern is distinguished by an increase or abnormality in one or more of the normal serum lipoproteins. The lipoprotein patterns are not necessarily specific for a single disease. They may be primary, many of which are also familial, or secondary to a host of different acquired disorders. The abnormal patterns are accompanied by clusters of clinical manifestations that allow them to be considered different syndromes.

TYPE I. This lipoprotein pattern is indicative of an inability to clear dietary fat (chylomicrons). It is nearly always familial and in its severe form a rare disorder. The patients are usually young and have creamy plasma, lipemia retinalis, hepatosplenomegaly, eruptive xanthomata and bouts of abdominal pain associated with ingestion of dietary fats. After standing in the cold a discrete cream layer forms in the plasma of these patients. Plasma cholesterol levels may be normal or elevated; triglyceride concentra-

tions are grossly elevated (often above 5,000 mg per cent). The familial disorder is recessively transmitted and is characterized by a deficiency in one or more of the enzymes involved in the clearance of fat from the circulation. Therapy is relatively simple. Diets low in fat result in a dramatic clearing of the hypertriglyceridemia and resolution of the associated abdominal complaints. There is no effective drug available now for the treatment of Type I. Supplementation of the diet with medium chain length triglycerides (MCT) often makes the diet more palatable.

TYPE II or hyperbetalipoproteinemia is a common pattern found at all ages. It is characterized by a marked increase in otherwise normal beta lipoproteins. Though the plasma is almost always clear, cholesterol levels are often in the 300-600 milligram per cent range with normal or only modestly elevated plasma triglycerides. Type II patients may have xanthelasma, arcus juvenalis and tendon and tuberos xanthomata. Of note is the associated premature coronary vessel disease and the often striking family history of early death. This makes it important for all physicians to recognize that the Type II abnormality is often familial and transmitted as a dominant trait with essentially complete penetrance. Though the Type II pattern may be secondary to excessive dietary cholesterol intake, myxedema, myeloma, liver disease or nephrosis, these causes can be quickly evaluated; and when ruled out, a Type II patient's family should be screened, for the patient's mother or father and 50 per cent of the patient's siblings and children (diagnosable as early as age one) will have hyperbetalipoproteinemia. Therapy for all of the secondary hyperlipoproteinemias should be directed at the acquired problem, i.e., thyroid replacement for myxedema. When this is not possible or the disorder is primary, specific therapy should be directed to the hyperlipoproteinemia. Dietary therapy for Type II emphasizes a reduction in cholesterol content to below 200 milligram per day (avoidance of eggs, many dairy products, and fatty meats) and consumption of increased amounts of polyunsaturated fats. Most of the drugs available for hyperlipoproteinemia have little effect.

* Head, Section on Lipoprotein, Laboratory for Molecular Diseases, National Heart Institute, National Institute of Health, Bethesda, Maryland.

This article was prepared for the JOURNAL by the Kansas Heart Association.

Cholestyramine, a bile acid sequestrant, in doses of 16-32 grams per day, has resulted in impressive reductions in cholesterol and betalipoprotein levels. With a combination of a low cholesterol diet and cholestyramine, lipid levels can often be brought into the normal range in the Type II subject.

TYPE III is a relatively uncommon pattern associated with the presence in plasma of abnormal beta lipoprotein forms. Patients have clear, cloudy, or milky plasma with elevations of both cholesterol and triglyceride concentrations into the 350-800 milligram per cent range. These patients often present in the third or fourth decade with planar xanthomata (orange-yellow lipid deposits in the creases of the palms of the hands) as well as tuberoeruptive (elbows, knees, and buttocks) and tendon xanthomata. Commonly, both premature coronary and peripheral vessel disease occurs. Type III is usually familial and apparently transmitted as a recessive trait. Dietary therapy for Type III emphasizes calorie control and a diet balanced in fat, carbohydrate, and protein and low in cholesterol. Clofibrate, 2 grams per day, is delightfully effective, especially when coupled with the balanced therapeutic diet. It results in a complete normalization of plasma cholesterol and triglyceride concentrations, resolution of external xanthomatosis and apparent improvement in peripheral vessel flow.

TYPE IV is a very common lipoprotein pattern, most frequently seen after the second decade of life and often associated with diabetes mellitus and premature atherosclerosis. It is characterized by an isolated increase in endogenous triglyceride (prebeta-lipoproteins). The plasma may be clear, cloudy or milky depending upon the triglyceride concentration. Cholesterol levels are frequently normal. The patients usually have no external stigmata. The pattern sometimes reflects a familial disorder transmitted as a dominant with delayed expression. It may be that several different mutations are responsible. It is often, however, secondary to other metabolic disorders and whether primary or secondary it is usually exacerbated by obesity. Dietary therapy emphasizes reduction to ideal body weight, and reduction in the carbohydrate and alcohol content of the diet with a concomitant increase in the amounts of polyunsaturated fats. Diet therapy alone often results in total normalization of the plasma lipids in Type IV. Drugs like clofibrate, D-thyroxin and nicotinic acid have been variably effective.

TYPE V is frequently seen secondary to acute metabolic disorders like diabetic acidosis, pancreatitis, alcoholism and nephrosis though it may be familial.

Patients with Type V usually become symptomatic after age 20 and may have all the features of Type I: creamy plasma, hepatosplenomegaly and bouts of abdominal pain often with frank pancreatitis. The patients often have multiple abdominal scars after years of occult abdominal pain. They appear to be intolerant to both dietary and endogenous fat and have triglycerides in the 1,000-6,000 milligram per cent range with mildly to markedly elevated plasma cholesterol on an unrestricted diet. Abnormal glucose tolerance and hyperuricemia are frequently associated. Diet therapy emphasizes caloric restriction, reduction to ideal body weight and a diet high in protein and low in carbohydrate and fat. Clofibrate, D-thyroxin, nicotinic acid, may all modestly reduce the triglyceride concentration, but often not to a significant degree.

The importance of going beyond the simple determination of cholesterol and triglyceride should be apparent. Five different types of hyperlipoproteinemia have been briefly characterized and discussed. Each is associated with a specific lipoprotein pattern, that may be familial or acquired. Each is associated with specific clinical and laboratory signs and at least three of the Types (II, III, and IV) are associated with premature vascular disease. Each type responds differently to dietary manipulations and specific drug regimens. Perhaps for the first time, it is now possible for the clinician to apply relatively specific therapy to the patient with a lipid transport disorder.

AWARD OF MERIT TO WOMAN'S AUXILIARY

The Woman's Auxiliary to the Kansas Medical Society received an award of merit for its outstanding efforts in the American Medical Association Education and Research Foundation program for 1968-69. The presentation was made during the Auxiliary's 46th annual convention held at the Waldorf-Astoria Hotel, New York City, July 13-17.

The Kansas Auxiliary had the largest contribution per capita of any state in the North Central Region.

The national Auxiliary's contribution to AMA-ERF totaled \$428,875.77, which will be given to the Institute for Biomedical Research and to medical schools for unrestricted use.

Kansas Auxiliary president for 1968-69 was Mrs. O. L. Hanson, Topeka. Mrs. Larry E. Vin Zant, Wichita, served as president-elect, and Mrs. Clair Cavanaugh, Great Bend, was AMA-ERF chairman.

The President's Message

Public Relations

I received two fine letters, one from Dr. John Segerson of Topeka and the other from Dr. Gregg M. Snyder of Wichita, concerning my last president's page. They were quite complimentary, but both had suggestions that were similar to so many I've heard lately. That we should do more to present the physicians' side of the controversy on Medicaid and Medicare as well as to improve the tarnished image we have in the public press.

We will have a Public Relations Committee this year headed by Dr. Jim Gleason. We will be asking him and his committee to perform a most difficult job; improve those relations.

No physician doubts that his image is great with nearly all of his own patients. It's the image those patients have of physicians in general and the AMA in particular that is bad. It seems from reading the daily papers that the AMA only opens its mouth to change feet. Having just returned from the AMA convention and seeing how the New York papers described scenes that I had seen and quoted speeches that I had heard, the improving of the image looks difficult indeed.

Kansas' own, Ed Martin, national president of the Student American Medical Association, gave an excellent talk to the House of Delegates. In his talk, he gave a well balanced critique of the pros and cons of organized medicine and to some extent medical education. It would be difficult not to agree with most of what he said. However, the New York papers gave the complete list of cons with nary a mention of the favorable remarks he made. Although I didn't get to talk to Ed after the newspaper article, I'm sure he would agree that the image they portrayed was not the one he had in mind.



Our Public Relations Committee, then, does have a tremendous job. They (and we) have no leverage; nothing to encourage the press to see it our way. Our only really effective approach is to do the very best job for the public we can and hope that our efforts will be recognized. We must also control that minuscule number in our ranks whose misdeeds the papers love to list as if they were the doings of us all.

To Jim Gleason and his committee we give a large challenge and our best wishes are certainly with them.

LELAND SPEER, M.D., *President*



Editorial COMMENT

Planning for Health

Health planning is considered to be a necessary activity of every professional association. Uncounted hours are occupied in the study of present conditions after which resolutions are adopted expressing need for improvement. The same field is plowed over and over as subsequent committees are activated, but of greater significance is the fact that so many agencies are working the same field simultaneously without knowledge of the efforts of others.

With the creation of federally sponsored agencies, health planning has accelerated. Certainly the intent is to collect, coordinate and disseminate data to all who may be concerned. Evidence is appearing that this is being done. Data is coming out in large volume; sophisticated, complex columns of figures that the reader feels must have a significance he wishes was more easily understood.

Then, his mind asks some questions. How was the data obtained? Federal commitment to involve the consumer raises concern as to whether the material was objectively or subjectively initiated. Were the producers, as physicians are now designated by federal agencies, sufficiently involved when facts were assembled?

Health planners are now a profession. Their method of operation is to assemble interested citizens, often of their own selection, for group discussion. Professional planners distribute data which is presented as fact. The conference finally adopts a resolution which says because of a stated present situation the following improvements are needed. These often involve a request for legislation to make available increased publicly funded services.

The next step in this carefully planned routine is discovered when a bill is presented before a legislative body because the public has expressed need for it.

These observations came to mind after attending the first meeting of the Personal Health Committee of the Coordinating Council for Health Planning. Forty-four persons were invited, including seven physicians, but only one as a representative of this Society. The others, although members, represented public agencies. The day was spent in discussing needs and another meeting was planned to establish a legislative program whereby the needs could be solved.

Several sheets of statistics were handed out as source material. The committee established from this that Kansas has lower physician ratio related to the population than the United States average. There are fewer accredited hospitals, but far more hospital admissions than over the nation. Deaths due to chronic diseases exceed the national figure, as do accidental deaths. Deaths from heart disease have risen in this state over the past five years while the United States figure is lower. This state exceeds the death rate for the country for all deaths from chronic conditions except for cirrhosis of the liver and for gastritis. Ours is greater for cancer, pneumonia, diabetes and others.

Next, the committee looked at a comparison of the counties in Kansas and found broad variations. In fact, deaths for the state stood at 4.00 and ranged from 0.36 in one county to 10.76 in another. The poverty level in Kansas is rated as 2.00 and varies in counties from 0.64 to 4.30. By way of some formula, not explained at the first meeting, there is a figure denoting the relative health index. The Kansas figure is 24.00 and ranges from 13.15 to 42.19.

The point of all this is clear and simple. Unless physicians attend these meetings, figures such as presented above will be interpreted by those who lack the doctor's understanding of their significance, and

recommendations which originate from the committee here described and many more that are similar will go before the legislature. Professional dominance is not necessary. Planners, health workers and the consumers are genuinely concerned. They want to improve health conditions and will listen to the physician. They want his advice, but unless he is there to give it what can such a group do but act upon whatever information is available?

Comments on Senate Bill 1575

(The following was submitted by H. Tom Gray, M.D., Chairman of the Commission on Scientific Studies.)

The recent editorial in the K.M.S. JOURNAL on Senate Bill 1575, "Regulation of Trade in Drugs and Devices" (June 1969), was excellent. With only superficial reading of this bill, the total impact upon *all practitioners* of medicine could be overlooked. I would herewith like to make some points about the bill that, in my opinion, affect us all.

The first paragraph of the bill says the bill is to regulate trade in drugs and *devices* by prohibiting the dispensing of drugs or *devices* by medical practitioners and their *participation in profits* from the dispensing of such products except under certain circumstances, and for other purposes.

"Device" is defined in Sect. 3C as any instrument, apparatus, or contrivance intended (1) for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man, or (2) to affect the structure or any function of the body of man, but such term does not include glasses or lenses intended for the correction of vision.

The all inclusiveness of this definition could, in my opinion, affect every physician in his day to day care of his patients and prevent, in some cases, the use of devices that are necessary in good patient care.

This bill would give the U. S. District Courts jurisdiction to prevent and restrain violations of the bill, and would permit the person who is allegedly injured by these unfair practices to sue for treble damages and the cost of the suit.

This bill was sent to the Senate Commerce Committee. Hearings will probably be held in early fall on the bill. Senator James Pearson is on the Commerce Committee, so those opposed to this bill should write him expressing their views. Copies of the letter could also be sent to Senator Dole and to our Representatives.

KRMP ANNOUNCES NEW LIBRARY SERVICE

The Kansas Regional Medical Program has announced a *Kansas Library System* to provide free long distance service to all Kansas health personnel who have limited or no library facilities.

An inbound WATS (wide area telephone service) line has been installed in the KRMP Office for Library Services at the Clendening Medical Library in Kansas City, Kansas. All calls are free of charge.

The service offered includes prompt medical reference services, preparation of bibliographies, aid in submitting requests to MEDLARS (Medical Literature Analysis and Retrieval System at the National Library of Medicine), and photocopying and mailing of book and journal articles.

Trained medical librarians are on duty Monday through Friday from 8:00 a.m. to 4:30 p.m. Night and week-end calls will be recorded and answered the following working day.

For those who reside in cities with medical libraries, the same telephone service is offered. They are: the Central Kansas Medical Library in Great Bend; the University of Kansas Medical Center Medical Library in Kansas City; Stormont Medical Library in Topeka, and Wichita State University Biomedical Library in Wichita.

All physicians, nurses and related health personnel are eligible to use this service. For further information and the telephone numbers to be called write to: Kansas Regional Medical Program, Public Information Office, 3909 Eaton, Kansas City, Kansas 66103.

MEDICAL ASSISTANTS CIRCUIT COURSES

September 6-7, 1969

Broadview Hotel—Wichita

September 27-28, 1969

Ramada Inn—Topeka



Personalities—IN KANSAS MEDICINE

Robert T. Manning, Kansas City, has been appointed associate dean in charge of student affairs at the University of Kansas Medical Center.

Samuel Zweifel, Sr., left in June to begin a two-year stint with the Peace Corps in Guatemala, Central America. Dr. Zweifel's primary duties will be taking care of the health of Peace Corps personnel. He will also spend some time on a pilot nutrition program for the Guatemalan Indians.

Henry J. Dick, Jr. has moved from Burlington to Chanute where he is associated in medical practice with **Henry K. Baker** and **Reuben J. Burkman**.

The director of student health service, Kansas State University, **H. P. Jubelt**, discussed drugs and youth at the State 4-H Leadership Conference held in July at Rock Springs Ranch near Junction City.

Dr. and Mrs. Mirl C. Ruble have moved back to Kansas from Oklahoma, and Dr. Ruble is now in general practice in Cherryvale. Dr. Ruble practiced in Parsons before moving to Big Hollow on Grand Lake in 1961.

The 1969 Jayhawker, M.D. Award went to **Donald R. Germann**, Kansas City. The award is presented by the graduating senior class at KUMC to the faculty member who has shown the greatest devotion to his primary duty as teacher of medical students.

In July, **Frank A. Moorhead**, Neodesha, attended a meeting in Chicago for Standard Oil physicians.

James A. McClure, Topeka, has been appointed Kansas area medical adviser for Southwestern Bell

Telephone Company. He succeeds **Forrest Loveland**, Topeka, who has served as medical adviser since 1951 and is now retiring.

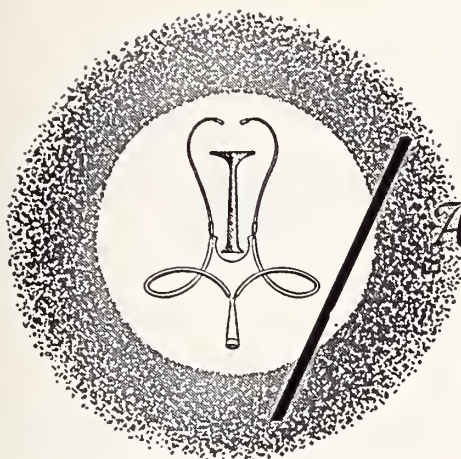
The Lawrence City Commission has appointed **Russell Frink** to the Lawrence Human Relations Commission.

Ronald McCoy has joined the staff of the Southwest Clinic in Dodge City. Before moving to Dodge City in June, Dr. McCoy practiced in Coldwater.

After serving 18 months with the Air Force in Kunsan, Korea, **Edwin D. Rathbun** has resumed his practice in Liberal. A member of the Kansas Air National Guard, Dr. Rathbun was called to active duty in January 1968.

The medical, moral and social implications of genetic counseling were discussed at a two-day meeting sponsored by the National Foundation-March of Dimes and Wesley Medical Research Foundation in Wichita. **Neil Schimke**, geneticist at the University of Kansas School of Medicine was the guest speaker. Wichita physicians participating in the program included **Ralph Hale**, **George E. Fritz**, **Leo P. Cawley**, **Russell A. Nelson** and **G. Gayle Stephens**.

William R. Roy, Topeka, has been employed on a parttime basis as obstetrical consultant to the Maternal and Child Health Division of the State Department of Health. He will serve as a member of the professional staff for an expanded family program in Kansas. Federal grants have been made to administer the program and funds to be used for expansion of family planning programs offered by county health departments in selected Kansas counties.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

SEPTEMBER

- Sept. 18-20 7th Seminar and Practical Workshop on *Diagnostic Ultrasonics*, sponsored by the Division of Neurological Surgery of The Johns Hopkins University, Baltimore, and Metrix, Inc., of Denver. The Ultrasonic Seminar will be at The Johns Hopkins Hospital. For information write Ultrasonic Seminar, P.O. Box 6222, Denver, Colorado 80206.
- Sept. 26-27 20th Annual Meeting and 6th Annual Delegates Assembly, Kansas Heart Association, Jayhawk Hotel, Topeka. M. Graham Clark, Point Lookout, Missouri, president of the School of the Ozarks and vice president of the American Heart Association will be the featured speaker at the banquet on Friday evening. For information write the Kansas Heart Association, Inc., 2941 Fremont, Topeka 66605.
- Sept. 21-25 4th International Symposium on *Comparative Leukemia Research*, Cherry Hill, New Jersey. Co-sponsored by the Leukemia Society of America, Inc. and the Special Virus Cancer Program of the National Cancer Institute of the National Institutes of Health. For more Information contact Dr. Edward P. Larkin, School of Veterinary Medicine, University of Pennsylvania, Kennett Square, R.D. # 1, Pennsylvania 19348.

OCTOBER

- Oct. 6-10 American College of Surgeons, San Francisco.
- Oct. 14-22 11th Congress of the Pan-Pacific Surgical Association, Honolulu, Hawaii.
- Oct. 22-24 16th Western Cardiac Conference, University of Colorado Medical Center,

Denver. For further information write: Colorado Heart Association, 1375 Delaware Street, Denver 80204.

POSTGRADUATE EDUCATION

University of Colorado:

- Sept. 29-Oct. 3 *Hospital Medical Staff Conference* (Estes Park)
- Oct. 6-10 *High Risk Infant Care* (limited)
- Oct. 27 *Oral Cancer Seminar*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Denver Children's Hospital:

- Sept. 7 *Pediatric Radiology*
- Oct. 24 *Intensive Care*

For further information regarding the above continuing education courses contact L. Joseph Butterfield, M.D., Department of Continuing Education, Children's Hospital, 1056 E. 19th Ave., Denver.

University of Nebraska:

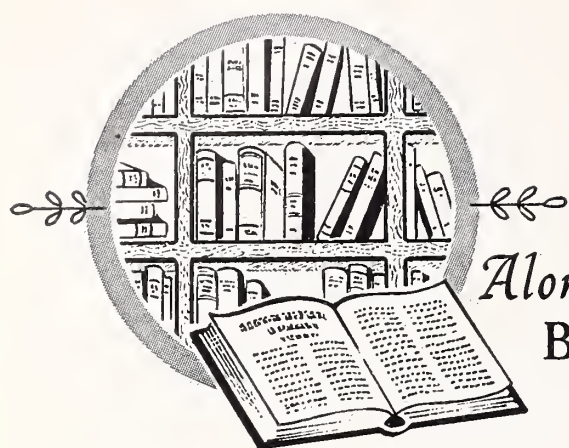
- Sept. 17-19 *Immediate Care of the Sick and Injured* (Nebraska Center, Lincoln)
- Oct. 17-18 BRYAN DAYS—*Selected Problems of the GI Tract* (Bryan Memorial Hospital, Lincoln)

For further information write: Department of Postgraduate Education, University of Nebraska Medical Center, 42nd and Dewey Avenue, Omaha 68105.

University of Iowa:

- Sept. 19-20 *Great Plains Regional Heart Meeting*
- Oct. 3-4 *Urology*
- Oct. 17-18 *General Practitioner's In-House Refresher*

(Continued on page 376)



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Aegerter, Ernest Emil. Orthopedic diseases; physiology, pathology, radiology. 3d ed. Philadelphia, Saunders, 1968.
- Armstrong, Michael Lawrence. Electrocardiograms; a systematic method of reading them. 2d ed. Baltimore, Williams & Wilkins, 1968.
- Bakerman, Seymour. Aging life processes. Springfield, Ill., Thomas, 1969.
- Beard, Crowell. Ptosis. St. Louis, Mosby, 1969.
- Bertolini, Alberto M. Gerontologic metabolism. Springfield, Ill., Thomas, 1969.
- Burns, William. Noise and man. London, Murray, 1968.
- Butcher, Harold John. Human intelligence: its nature and assessment. London, Methuen, 1968.
- Cleland, William. Medical and surgical cardiology. Philadelphia, Davis, 1969.
- Doleček, Rajko. Metabolic response of the burned organism. Springfield, Ill., Thomas, 1969.
- Falck, Frank J. Stuttering; learned and unlearned. Springfield, Ill., Thomas, 1969.
- Freeman, Leonard M. Clinical scintillation scanning by 21 authors. New York, Hoeber, 1969.
- Invitational Conference on Human Behavior Genetics, 2d, Louisville, Ky. 1966. Progress in human behavior genetics. Baltimore, Johns Hopkins Press, 1968.
- Maingot, Rodney. Abdominal operations. New York, Appleton-Century-Crofts, 1969.
- Maizels, Montague. Haematology in diagnosis and treatment. London, Bailliere, Tindall and Cassell, 1968.
- Norris, Walter. Anaesthetics, resuscitation, and intensive care. 2d ed. Baltimore, Williams & Wilkins, 1968.
- Reisman, Leonard E. Genetics and counseling in medical practice. St. Louis, Mosby, 1969.
- Rubin, Ei H. The lungs in systemic diseases. Springfield, Ill., Thomas, 1969.
- Ruffin, Julian M. Selected papers of Julian M. Ruffin [and] his fellows and associates. Ephrata, Pennsylvania Science Press, 1969.
- Schmidt, Dean A. Computers in medicine. . . . Columbia, Mo., University of Missouri, 1968.
- Spotnitz, Hyman. How to be happy though pregnant. New York, Coward-McCann, 1969.
- Swenson, Orvar. Pediatric surgery. 3d ed. New York, Appleton-Century-Crofts, 1969.
- Swinyard, Chester A. Limb development and deformity. Springfield, Ill., Thomas, 1969.
- Sykes, M. K. Respiratory failure. Philadelphia, Davis, 1969.
- Parry, Meyer H. Aggression on the road. . . . London, New York, Tavistock, 1968.
- Pirofsky, Bernard. Autoimmunization and the autoimmune hemolytic anemias. Baltimore, Williams & Wilkins, 1969.
- Pryse-Phillips, Williams. Epilepsy. Bristol, John Wright, 1969.
- Ulcerative colitis. Baltimore, Williams & Wilkins, 1968.
- Webb, Wilse B. Sleep. . . . New York, MacMillan, 1968.
- Williams, David Innes. New York, Appleton-Century-Crofts, 1968.



Book REVIEWS

RADIOLOGY IN WORLD WAR II, U. S. ARMY MEDICAL SERVICE. Arnold L. Ahnfeldt, Editor in Chief; Kenneth D. A. Allen, Editor for Radiology. U. S. Government Printing Office, Washington, D. C. 1,087 pages. \$8.25.

This is an excellent book, complete in almost every detail dealing primarily with the activity of radiology in relation to general hospitals in the United States and field hospitals in various sections of the world during World War II. Brief summations are included on personnel training and equipment between the World Wars. Considerable detail is included about personnel training, equipment, supplies, hospital staffing and relationships as well as radiation therapy and radiation protection during World War II. The Mediterranean theater of operation and the European theater of operation as well as the Asiatic and Pacific theaters are described by the various commanders of these operations with warm insight and in many instances fond memories. Considerable attention is paid to the administrative and logistic considerations of the theater of operation. The minor commands are discussed in less detail. Radiology and the atomic bomb, a subsection of the edition, is of unusual interest and describes the radiological considerations at Los Alamos as well as Alamogordo, New Mexico, and the observations carried out in Japan following the explosion of the atomic bombs.

The index is very complete.

Any radiologist or any physician interested in Radiology in World War II either historically or from the logistic considerations alone would be interested in this volume. The authors have done an exceptional job. There are many group pictures relating to the war and several radiologists in the state of Kansas are in these pictures.—R. C. L.

CLINICAL DIAGNOSIS BY LABORATORY METHODS (14th edition) by Israel Davidsohn and John B. Henry. W. B. Saunders Company, Philadelphia, 1969. 1,308 pages illustrated. \$24.00.

The 14th edition of Todd-Sanford's *Clinical Diagnosis by Laboratory Methods* is authored by 29 contributors under the joint editorship of Israel Davidsohn and John B. Henry. The new book consists of 33 chapters, three appendixes, a detailed table of contents and an alphabetical index.

Most chapters have been updated or rewritten: Statistical Tools in Clinical Pathology is illustrated with case histories that exemplify the usefulness of quality control. The chapter on Urinalysis is supplemented by a new one on renal function. The chapter on Blood includes subtitles on immune anemias and blood in pregnancy; infectious mononucleosis is presented in detail. The medico-legal applications of the inheritance of blood-group inheritance and a short discussion of the fibrin stabilizing factor (coagulation factor XIII) appear for the first time. The chapter on Radioactive Isotopes now has more diagrams and scintigrams of normal and abnormal internal organs. Biochemical procedures are presented under such titles as Clinical Chemistry; Endocrine Measurements; Water, Electrolytes, Acid Base and Oxygen, and are applied to the evaluation of hepatic function and diagnosis of pancreatic disorders. Separate chapters are dedicated to Enzymology, Gastric and Duodenal Contact, and Chemical Examination of Feces. Techniques on microbiology are separated in Medical Microbiology; Medical Protozoology; Medical Hematology and Entomology; Medical Mycology; Viral, Rickettsial, Bedsonial and Mycoplasmal Diseases; Vaccines; Serology for Syphilitic and Non-Syphilitic Conditions; Sputum; Cerebrospinal Fluid; and Body

Fluids and Secretions. The chapter on Hospital Epidemiology deserves special mention because it outlines the formation and operation of the Infection Control Committee, points out to the changing pattern of resistance in patients under administration of chemotherapeutic agents and immunosuppressive drugs and provides guidelines for the control of the bacterial population of the hospital. The only deletion from this edition is the chapter on Milk and Water.

A new chapter is dedicated to the examination of the seminal fluid and three new ones to matters such as: Pregnancy Tests and Chorionic Gonadotropin Assays; Examination of the Amniotic Fluid, which discusses the composition of this material in relationship with the hemolytic disease of the newborn; and Cytogenetics, which describes the methods for karyotyping, and the syndromes resulting from chromosome abnormalities. The last chapter of the book deals with design of the diagnostic laboratory. The author definitely sets this matter within the responsibility of the clinical pathologist and brings into conventional sources of information concepts such as "laboratory module," "bench length," etc. along with succinct ideas on plumbing, ventilation, electrification and furnishing. This unusual chapter in a book of this nature will greatly help pathologists in their never ending quest for adequate room expansion.

This book covers the entire scope of clinical pathology and in so doing, provides techniques and interpretation of the laboratory tests performed throughout the United States. Its didactic style applies to the technologist as well as the busy pathologist; its appendix on Solutions, Weights, and Equivalents and the one on normal values are a quick reference to have at the fingertips. In conclusion, this is the book for the laboratory worker.—A. H.

1969 CURRENT THERAPY by Howard F. Conn. W. B. Saunders Company, Philadelphia, 1969. 945 pages. \$15.00.

The one defect of this book is its size, yet it is packed with much useful information for the practicing physician. If used in the office as a handy reference, the stumbling blocks of treatment can be overcome easily. Each of the sections is edited by a specialist giving his method of treatment. I found each disease clearly subdivided for quick reference, methods of treatment accurately described for rapid review and drug doses specifically documented. Better yet, it estimates the expected results of medications and treatments. I found this valuable for it enables one to judge the tempo of a disease and anticipate the outcome. This book should be at the fingertips of each practicing physician.—J. E. C.

Announcements

(Continued from page 373)

Oct. 23-25 *Surgery*

For further information write Director of Postgraduate Education, University of Iowa College of Medicine, 100 F Westlawn, Iowa City 52240.

Oct. 4-10 *Annual Otolaryngologic Assembly*, Illinois Eye and Ear Infirmary, Medical Assembly, Chicago. The Dept. of Otolaryngology of the College of Medicine, University of Illinois, offers a condensed postgraduate basic and clinical program for practicing otolaryngologists, designed to bring to specialists current information in medical and surgical otorhinolaryngology. Write for information: Otolaryngology, P.O. Box 6998, Chicago 60680.

Oct. 15-17 *Advances in the Diagnosis and Treatment of Cancer*, presented by Harvard Medical School at Massachusetts General Hospital, Boston. For application form, write Assistant Dean, Dept. of Continuing Education, Harvard Medical School, 25 Shattuck Street, Boston 02115.

The annual course in Postgraduate Gastroenterology, sponsored by the American College of Gastroenterology, will be held at the Rice Hotel, Houston, Texas. The program will include:

Oct. 23 *Symposia on the Esophagus and on Cancer of the Stomach*

Oct. 24 *Symposia on the Liver and on Malabsorption Syndrome*

Oct. 25 *Gastrointestinal Problems in Space Medicine*

For further information write the American College of Gastroenterology, 299 Broadway, New York, N. Y. 10007.

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TOPEKA, KANSAS

Division of Disease Prevention and Control—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in May, 1969 and 1968

<i>Diseases</i>	<i>May</i>			<i>January-May Inclusive</i>		
	<i>1969</i>	<i>1968</i>	<i>5-Year Median 1965-1969</i>	<i>1969</i>	<i>1968</i>	<i>5-Year Median 1965-1969</i>
Amebiasis	1	—	1	1	4	4
Aseptic meningitis	—	—	—	3	—	—
Brucellosis	—	1	1	1	2	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	1	—	—	3	4	3
Encephalitis, post-infect.	—	4	—	—	5	—
Gonorrhea	451	324	324	1,915	1,595	1,595
Hepatitis, infectious	18	51	18	133	145	133
Measles (Rubeola)	1	—	*	4	8	*
Meningococcal meningitis	—	1	1	13	14	11
Mumps	19	95	*	91	688	*
Pertussis	—	—	—	—	—	3
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	2	1	2
Rubella (German Measles)	2	9	*	32	108	*
Salmonellosis	18	13	15	67	73	73
Scarlet fever	1	4	3	22	25	50
Shigellosis	11	14	11	30	27	30
Streptococcal infections	222	109	146	1,550	1,510	1,510
Syphilis	149	107	107	776	432	449
Tinea capitis	3	—	3	20	27	26
Tuberculosis	16	16	25	88	94	98
Tularemia	2	—	—	3	1	2
Typhoid fever	—	1	—	—	1	1

* Statistics not available for 5-year median.

Fall Meeting
Kansas Chapter, American Academy of Pediatrics
Radisson Hotel, Wichita
September 6, 1969

PEDIATRIC EMERGENCY CARE

Clinical Aspects of Pediatric Emergencies—

Lucian Leape, M.D., Department of Surgery,
Section on Pediatric Surgery, University of
Kansas Medical Center

Andrew Margileth, M.D., Professor of Pediatrics,
George Washington University School of Medi-
cine, Washington, D. C.

Community Organization of Emergency Care and

Organization of Emergency Care at the Hos-
pital—

Roger Youmans, M.D., Director of Emergency
Services, University of Kansas Medical Center

All members of the Society and interested lay per-
sonnel are invited.

The program will be of particular interest to
emergency room nurses and other personnel involved
in pediatric emergency care organization and de-
livery.

**Reservations should be sent to Roy C. Knappenberger, M.D.,
Wichita Clinic, 3244 E. Douglas, Wichita 67208**

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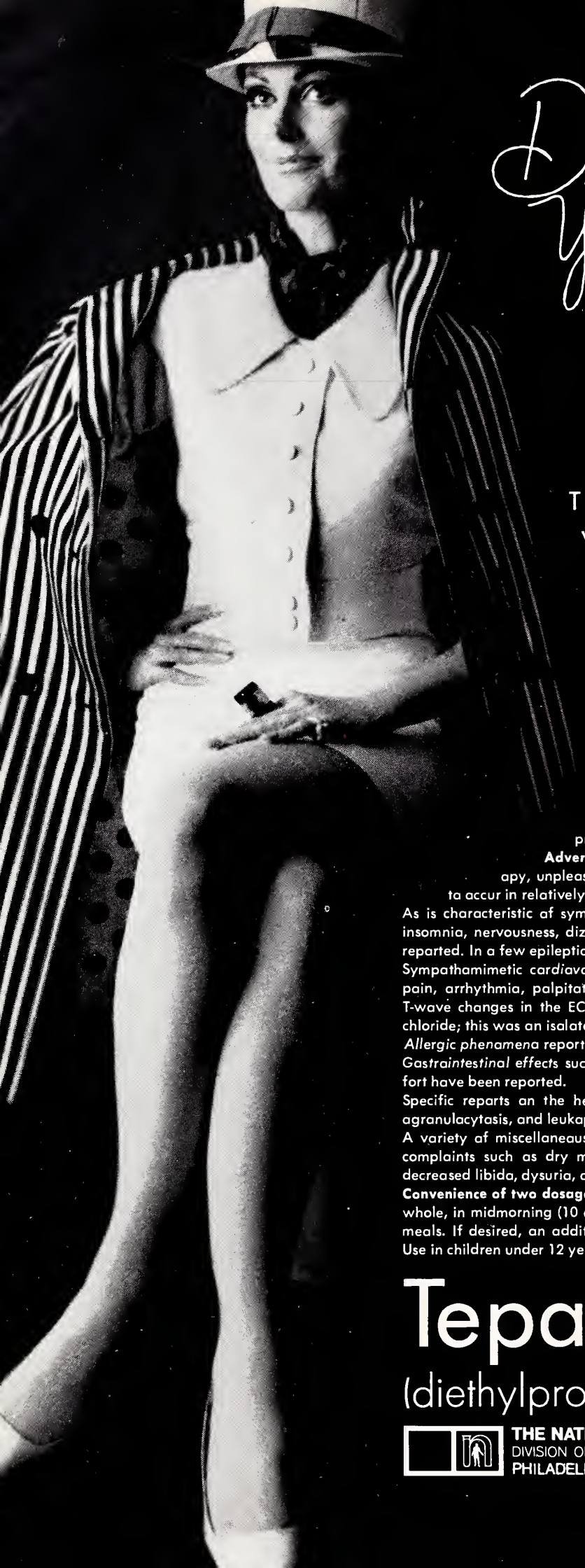
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VOL LXX
NO IX



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The JOURNAL of the KANSAS MEDICAL SOCIETY

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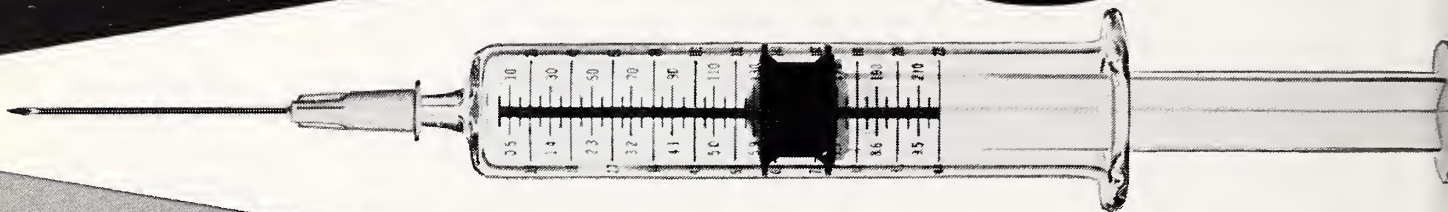


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Kaiser-Permanente Program

Experience With a Comprehensive Prepaid Medical Plan and Its Implication for Future Medical Practice

WALLACE H. COOK, M.D.,* *Walnut Creek, California*

IT APPEARS THAT there are a number of major trends influencing medical practice today and the Kaiser-Permanente organization is committed to some of these trends and involved with others. The significant trends are toward greater specialization by doctors; toward hospital-based medical practice; toward more and more inclusive prepayment; and toward preventive medicine and health care. A minor trend toward the use of computers in medicine has developed.

During the past few years the health care field has been subject to tremendous political, social, economic and technological changes. Patients are far more knowledgeable and want the best possible care as a right. Unions are demanding the best care for their members, and at least partially because each year they must negotiate more money from employers for the benefits, are anxious to get into the management of medical care.

There have been some lay-controlled union health plans organized, but with only modest success. There is an organization on the West Coast led by Mr. Mohn of the Teamsters' Union called the Counsel for Health Plan Alternatives. Representing large purchasers of medical care, this organization wants a

consumer voice in health care management and, along with their other activities, they have been trying to negotiate a position on the board of trustees of the Kaiser Foundation Health Plan and Kaiser Foundation Hospitals. Another large purchaser of medical care, the federal government, also has a vested interest in the cost of medical care and has held innumerable conferences and appointed commissions to study the problems of cost. Almost without exception, group medical practice combined with prepayment has been identified as the most promising approach to organizing and delivering health service more efficiently. Kaiser-Permanente is one such organization.

The latest published study, and one which I am sure that many of you are aware of, is the Report of the National Advisory Commission on Health Manpower. This Commission determined that members of the Kaiser-Permanente Program pay 20 to 30 per cent less than the average Californian does for comparable comprehensive medical care. In addition, the Commission determined that costs for this care had risen 25 per cent less than the national per capita private consumer expenditure for comparable medical services during the five-year period studied. The Commission also stated that, "it was their strong impression that the quality of medical care delivered by the California Permanente Medical Groups is equivalent if not superior to that available in most communi-

* Presented at the annual session of the Kansas Medical Society, Salina, Kansas, May 6, 1969.

Dr. Cook is associated with the Permanente Medical Group, San Francisco, California.

ties." I would like, then, to describe this model, trend-setting, social experiment in the provision of medical care called Kaiser-Permanente.

What was to become Kaiser-Permanente was started in the southern California desert in the mid-30's by Dr. Sidney Garfield. With the friendship and assistance of Henry Kaiser it grew and developed at Grand Coulee Dam in eastern Washington, then matured in the Richmond, California, shipyards during World War II where medical care was provided for 90,000 shipyard workers.

After World War II the membership was reduced to approximately 10,000 members and with this nucleus the plan was opened to the general public, and now 23 years later, the membership is more than 1.8 million.

The Kaiser-Permanente Medical Care Program is composed of three separate legal entities which work in consort to arrange and provide medical care to persons voluntarily joining the program. The first of these entities is the Kaiser Foundation Health Plan, a nonprofit organization which contracts with persons, either individually or in groups, to arrange comprehensive medical care in return for a prepaid monthly membership charge. The health plan, in turn, contracts with the other two primary entities of the program to provide this medical care. Kaiser Foundation Hospitals, a nonprofit charitable organization, owns and operates nineteen community hospitals and one of five separate, though similar, medical groups serving different geographical areas.

Each of the medical groups, which are organized as partnerships or associations, is paid a negotiated per capita amount for each health plan member residing in its geographic region. Together the Kaiser-Permanente Program represents a total of over 1,750 physicians serving over 1.8 million people on the West Coast, in Hawaii and in the greater Cleveland, Ohio, area. Approval has been given by the board of trustees to expand to another region and we will open in Denver, Colorado, in July of this year. This new region will be sponsored and directed by the southern California region while Cleveland's direction is by the northern California region.

In each of the five regions there is a selection of plans for group enrollment and one plan for individual enrollment. The only differences in the plans are the amounts of monthly dues paid which determine the actual benefits. If, for example, a group wishes to prepay psychiatric benefits or prepay a portion of drug costs they may do so. The benefits of a fairly widely accepted group plan for an employed subscriber and his family are as follows:

Each member of the family may have unlimited visits to doctors in their offices without supplemental

charge. All necessary surgery without supplemental charge. One hundred fifty cost-free days of hospitalization plus 215 days at health plan rates; special duty nursing, if medically required in the hospital; all necessary laboratory work, x-rays and physical therapy without supplemental charge; eye examinations without supplemental charge; doctor's home calls at a charge of \$3.50 during the day and \$5.00 at night, and ambulance service as medically required. In addition, members under this plan are protected by a maximum of \$2,000 in indemnity coverage of accidental injury or emergency illness occurring outside of the health plan service area. Coverage for this particular plan would cost the subscriber, his spouse and one or more children \$39 per month.

This is a maximum coverage plan and includes a prepaid drug program. Under this drug program the patient pays the manufacturer's wholesale listed price for the smallest standard package with one dollar minimum charge. Immunizations are also without charge under this program.

A lesser coverage program would provide for a one dollar charge for office visits, 111 free days of hospitalization; one-half cost of laboratory and x-ray and no drug prepayment for a family of three or more for \$30 per month. This range from \$30 per month for the basic plan to almost \$40 with all of the prepayment options includes the recent increase in rates effective April 1, 1969. As yet, we have no indication that this dues raise will adversely affect the growth rate of the health plan.

The year 1968 was the fourth consecutive year in which the health plan membership growth exceeded 150,000 members. There were 165,000 new members for a ten per cent growth to a total of 1,833,000. Our projection for 1969 indicates another 150,000 new members for a total of 1,983,000. Cleveland and Denver are not included in these projections, so we may well reach 2,000,000 in 1969.

In my description I will concentrate on the northern California region which represents about one half of the entire program and is served by the Permanente Medical Group—the group with which I am associated.

This Permanente Medical Group has more than 800 full time physicians providing professional services, both in- and outpatient, to approximately 850,000 persons. The group has medical offices in 14 cities, 13 of which are located in the greater San Francisco Bay area, and the fourteenth in the state capital, Sacramento. In eleven of these cities, including Sacramento, the offices are located in or adjacent to a Kaiser Foundation Hospital, thus an integral mixture of inpatient and outpatient facilities which we refer to as a Kaiser-Permanente Medical Center.

The three peripherally located medical clinics are associated with the nearest of these medical centers. Incidentally, each Kaiser Foundation Hospital is accredited by the Joint Commission on Accreditation of Hospitals with the exception of one which is too new for inspection. All are open community hospitals with a courtesy staff of local physicians, although most of the patients are members of the health plan. The hospitals range in size from 40 to 350 beds with internship and residency programs offered in the larger hospitals.

The Permanente Medical Group is organized as a partnership. New physicians are employed for three years following which they may expect to be elected to partnership. New partners are elected each July and there are now 465 partners. The medical partnership also employs all the paramedical and professional personnel in the outpatient medical offices, administrative people, clerks, receptionists and nurses. The x-ray, laboratory, physical therapy and emergency room personnel of the hospitals are also included and these services are considered part of the medical group's outpatient facilities which are shared with the hospital. There are 3,400 employees of the medical group. The radiologists, anesthesiologists and pathologists in the hospitals are also members of the medical partnership.

The management of the partnership is carried out by an executive committee of nine physicians, six of whom are long term members and three are short term members elected for two years. Each of the eleven medical centers has an appointed physician-in-chief who is responsible to the executive committee for the administration of medical matters, both business and professional. This doctor is also the chief-of-staff of the hospital with which he is associated, but he has no line administrative authority in the hospital.

In each of the medical centers there is a large multi-specialty group of physicians of which more than 80 per cent are Board certified or qualified in their respective specialties. Except for a relatively few doctors who work weekend emergency shifts, or other similar part time positions, the members of the medical group are full time doctors and this characteristic differs from some other large group practices in which many of the doctors are part time.

The employed physicians, during the first three years, are paid a salary by the medical group and as partners, income is received through a drawing account which is paid monthly. The profits of the partnership are distributed approximately quarterly on an equal basis to all partners.

The per capita amount of the contract with the health plan is negotiated each year based on fore-

casted expenses of the medical group operation. Profits generated within that contract or savings which result from the cooperative efforts to reduce hospital expenses become medical group profits and are distributed to the partners.

The growth rate of our program has meant the addition of between 75 and 100 new physicians annually for the past several years. The acquisition of the equivalent of the doctor output of one medical school by the Northern California Permanente Medical Group alone illustrates the physician recruitment problem. The favorable factors for recruiting in California have led some of our critics to state that our success cannot be duplicated elsewhere. We are attempting to disprove this contention by expanding eastward.

New physicians have the advantage of entering a hospital-based practice, including modern offices and hospital facilities and sophisticated equipment without any investment on their part. Health plan members are encouraged to use the facilities without worry about financial barriers, thereby supplying ample clinical material for a professionally satisfying practice. The fact that the patient has already prepaid his care encourages consultation and referral. The various specialties are departmentalized and the department heads can be sure that the individual physician's responsibilities are commensurate with his professional ability. Working within one's level of competence helps insure quality on the one hand and acts as a stimulus for self-improvement on the other.

Our field of medicine, both in group and solo practice, often wonders about its ability to assess and control quality. We feel that our type of association in both the hospital and outpatient practices represents an open book which is continually exposed to evaluation by our colleagues, both in the same and other departments. Each physician's pride in the quality of care which the group provides constitutes a continual motivation to improve standards. A substantial number of physicians in the group have either teaching or research affiliations in one of the three medical schools in our area. The Community Service Program, of which research is a part, spent \$11,000,000 last year in all regions. Approximately one half of that sum came from government grants.

Clinical research is encouraged and in part supported by a Research Institute which is part of the organization. We have both intra- and extramural educational programs which are under the direction of a staff education director at each medical center.

We are often asked about physician satisfaction. One evidence of this is the rate of turn-over of physicians, which after the initial period of mutual evaluation is approximately one per cent a year.

Fringe benefits available to the physician in the Permanente Medical Group are about the same as those in other large groups. That is, a more orderly working schedule, group life insurance, group disability insurance, vacation, sick leave, educational leave and a retirement program.

During the evolutionary development of our program a number of guiding principles of our multi-specialty group practice evolved. These are prepayment, group practice, voluntary enrollment, integrated hospital and medical office facilities and preventive medicine.

The unique factor in prepaid group practice is not any fundamental difference in the practice of medicine on the doctor-patient level, but rather in the mechanism of payment for medical services and the resultant efficiencies in bringing the doctor, the patient and the hospital together.

Prepayment of medical expenses in the United States is not unusual since close to 90 per cent of the people have at least some portion of their care prepaid by them, or for them. The coverage of these people becomes more comprehensive each year. Most doctors, therefore, have a large proportion of their income prepaid by the patient. If the prepayments are made to an insurance company, the company acts as an exchanger of money converting prepayment to fee-for-service. In the prepaid group practice concept, prepayment is made directly to the providers of service or to the program with which they are associated. This provides a relatively predictable stable income against which to budget both hospital and professional expenses. Under this concept there is a reversal of the usual economics of medical care. That is, the sick patient becomes a liability while each healthy member is an asset. The notion that this reversal of medical economics may encourage the practice of poor medicine is entirely wrong. In the long run it becomes clear that the delivery of good medical care is considerably more economical. The principle of group practice needs no further discussion.

Voluntary enrollment and dual choice, we think, are important principles. Each of our health plan subscribers initially and repeatedly each year has voluntarily chosen to join the health plan. The dual choice principle means that the potential member must have a choice between the Kaiser Foundation Health Plan and one or more other health plans. The Kaiser Foundation Health Plan does not accept any members as exclusive groups. The Government Health Benefits Program must offer its members choice between the Kaiser Foundation Health Plan and at least one significantly different prepayment program, such as an indemnity or service program. Thus, there are no captive groups, and I might say no captive physicians since if a member cannot develop and maintain a satisfactory doctor-patient relationship they may be invited to join the dual choice plan.

The fourth principle is that of well planned, modern, integrated facilities. Ours is, for the most part, a hospital-based practice. The fifth basic principle is preventive medical care, or health care, and I will say something more about this shortly.

Our physicians become involved not only in crisis medicine or episodic medicine, but in the continuity of health maintenance. The physician assumes the responsibility to a segment of the community, to organize medical services, to provide the most he can, not only in the treatment of disease, but also in its prevention. This assumption of responsibility for the continuing care of a large, stable segment of the community invites experimentation, innovation and new methods of organizing services, of more efficient utilization of professional talent and of physical facilities, and encourages emphasis on early detection of disease, preventive measures and predictive medicine.

The Permanente Medical Group has developed new automated laboratories, designed computerized health screening programs for adults and children, and is active in adapting electronic data processing technology into hospital and medical offices.

Our San Francisco hospital has a contract with the FDA for a drug reaction study. At present, the diagnosis on all outpatient visits along with other pertinent information is being stored in a computer. Visual display terminals will soon be installed in the hospital and later this year similar information for inpatients will be collected.

We are currently phasing into operation the only Auto-Chemist in use in this country, an amazing piece of equipment which performs 24 different analyses on one blood sample in a very short period of time and performs them very accurately. This machine is now performing the laboratory work on the multiphasic programs which are in three of our Bay Area hospitals.

In Oakland a new health education center was opened recently, where we hope to utilize audiovisual training techniques, including closed circuit videotape television, teaching machines and other instructional material to promote health education and to improve physician-patient communication.

After studying the program of Dr. Henry Silver at the University of Colorado, we are starting to train and utilize nurse practitioners. So far, this seems to be a very acceptable and helpful concept for relieving pediatricians of some of their routine work.

These are the types of things that our kind of practice can accomplish. You might ask, is this assembly line medicine, a mechanization of medical care which depersonalizes the doctor-patient relationship? We believe that it is quite the opposite. Some of what I have just mentioned frees the physician from repetitious and routine duties he has been performing. Our business-like organization with lay administrators to help the physician relieves him

of increasing supervisory and clerical functions. Other projects I have mentioned provide the physicians with more information about the patient and, hopefully, provides the patient with a better understanding of his health. With the doctor able to concentrate his attention on professional considerations and with more mutual understanding on the part of both, the doctor-patient relationship is bound to be enhanced.

The cost of health care services in America amounted to more than 50 billion dollars in 1967, making it the third largest industry in the United States. It may have become the second largest in 1968 and is predicted to become the largest by 1975. At the same time there is increasing dissatisfaction with the health care industry, with the rapidly rising cost of medical care, which is rising twice as fast as other living costs, with the inability of certain segments of American society to obtain entrance to the health care system, with the unavailability of professional health services despite greater numbers of health workers and more medical facilities than ever before.

One of the problems, I believe, is that we in the health care business are becoming the nation's largest industry with little if any of the business or corporate organization or planning that has gone into the rest of American industry. I believe that our experience

in the Kaiser-Permanente Medical Care Program has shown that this approach to the practice of medicine can lead to a more efficient and effective organization of medical care.

Many of our critics have said that we practice socialized medicine, but in reality we are the antithesis. We are completely self-sustaining and self-supporting, a model of free enterprise in every respect. We have received no federal, state or local subsidy for our operation or growth. This growth even excludes the use of Hill-Burton or Hill-Harris funds and our fixed assets in hospitals, medical offices and equipment will reach \$270 million in 1972.

Predicting how much and how soon this approach will change the future of the provision of medical care in the United States is, of course, pure conjecture. The important challenge regardless of what changes occur in the provision of medical care is the willingness of traditional medicine to accept the new concepts and to reorganize and provide the services that are needed today.

The future of private enterprise in medicine depends upon the willingness of the doctors of the country to anticipate the increasing needs and problems in health care and to lead the way in proposing solutions.

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Medical Practice—

The Government's Role in Its Future

FRANCIS L. LAND, M.D.,* *Washington, D. C.*

I HAVE NO CRYSTAL ball. But even without such an instrument of prophecy there is much I can say in response to your invitation to discuss the role of government in future medical practice. The essence of it is that government will be, as it is and has been, the strong supporting partner of the practicing physician as he works to improve the quality, the quantity, the effectiveness, and the distribution of medical care. Emphasis will continue to be on translating our medical advances into improved health and vitality for the entire nation.

Before I go into more detail, let's pause long enough to remember that government is not a mechanical monster or an incurable disease. It is instead the visible and active manifestation of our national commitments. Government is the people we elect, the people they select, and the programs they devise together to resolve our common problems.

One of our major national problems is to make quality medical care available for all our people. This is partly a matter of economics: the disastrous cost of the health gap in terms of impairment, disablement, and dependency is becoming increasingly obvious. It is partly a matter of self-preservation: how long can a nation endure if disadvantage is perpetuated and even worsened from generation to generation by inadequate medical and health services for a substantial proportion of our infants and children? Primarily, of course, our national determination to reach everyone with adequate medical care is a matter of common decency and humanity, a matter of conscience and individual dedication.

Several federal and federal-state programs work together to overcome the obstacles facing us as we try to improve and expand our medical care delivery systems. Some of these programs support research. Some encourage comprehensive planning. Some help to develop new medical facilities. Some subsidize medical education. Some concentrate on consumer

protection, some on environmental health. Some provide actual medical care. Some emphasize rehabilitation. Some are directed particularly to maternal and child health. Two programs, Medicaid and Medicare, help to pay medical bills.

As practicing physicians and active members of the Kansas Medical Society you have been working in and with these programs. Many of you have been responsible for their implementation here in Kansas. It would take all day to do any one of them justice. What I want to do this morning is to comment briefly on three that directly influence the delivery of medical care—Hill-Burton, Medicare, and Medicaid—noting particularly changes in emphasis that may affect these programs in the near future. Then, in conclusion, I shall have a few words to say about an exciting new development that holds great promise for the future of the nation. I refer to the Nixon administration's special interest in the early childhood years. The specter of sky-rocketing medical care costs will be with us throughout the discussion—as you could have predicted, even though like me you lack the prophetic guidance of a crystal ball.

Hill-Burton Program

Now to Hill-Burton, and its future. It is impossible to over-emphasize the effect the Hill-Burton program has had on the delivery of medical care in this country. When this program was initiated, we had something less than 60 per cent of the hospital beds we needed. Small towns and rural areas were particularly deficient in this regard. Thanks to Hill-Burton, the last 23 years have seen the addition of 414,000 hospital beds to our medical care resources—not half a million but not far from it. Now it is estimated that we have close to 90 per cent of the hospital beds we need. This would be a significant change had our population and its needs remained steady. It is an even more remarkable change in view of the increase in our national population over these same 23 years.

When Hill-Burton was launched, our major need was for new hospitals in outlying areas. Now the pendulum has swung, and our urgent needs are for modernization of existing hospitals, for construction of nursing homes and extended care facilities, and for the development of the kind of multi-discipline

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Dr. Land's resignation from this position became effective August 31, 1969.

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neighborhood health and medical facilities that can best serve the needs of our struggling inner city families.

Recent administration proposals, if they are accepted by Congress, would give Hill-Burton a significant new role in meeting the urgent needs of the coming years. Let me summarize the changes.

In the first place, guaranteed loans would provide financial backing for the massive costs—estimated at \$11 billion—of modernizing acute care facilities throughout the country.

In addition, block grants would be available to encourage states to expand such facilities as outpatient clinics, neighborhood health centers, skilled nursing homes, and extended care facilities.

Existing Hill-Burton categories would be eliminated, and both loan funds and block grants would be allotted to the states on the basis of financial need, population, and the need for construction and modernization.

We have no way of knowing how many lives Hill-Burton facilities have saved in areas remote from large urban centers. With the changes I have outlined, we hope Hill-Burton's future contribution can be equally significant to the on-going life of the nation.

Medicare and Medicaid

And what of Medicaid, my specialty practice, and its partner Medicare? By helping to pay medical bills these programs serve a double function: they benefit eligible individuals who need medical care and they support the expansion of quality medical services. Only people 65 and older benefit directly from Medicare and only certain kinds of low-income people benefit directly from Medicaid, but the entire nation benefits from the expansion of mainstream medical services made possible by these two programs. Let me give you some examples.

Thanks to Medicare and Medicaid, physicians can now afford to practice in counties in which only half the population is able to pay for medical care. Commenting on the impact of these bill-paying programs, the director of one state's Medicaid program noted specifically the redistribution of physicians into economically undeveloped areas. Before Title XVIII and Title XIX, no young physician could afford to set up practice in such areas. The large charity load was too large. Now a man right out of school has settled in one of these counties, a county that previously had had no real physician at all. In another county with a larger population, there had been one physician, a man at retirement age. Now there are four young doctors. In state after state experience has demonstrated that when physicians are paid for caring for all patients, they gravitate toward places where there are

doctor shortages instead of tending to cluster in urban and suburban areas. And everyone benefits: both affluent and needy in those more remote counties now have the benefits of medical care; in addition, physicians have broader options in choosing where to practice.

These are not paltry gains, even in themselves. But the benefits do not stop there. Young schoolteachers can now settle in such counties without depriving their families of adequate medical care. And other kinds of development become possible when the area can offer improved medical care and improved schools.

The headlines don't report such stirrings of new life in undeveloped areas. The headlines concentrate on costs. And well they may. Costs are sky-rocketing. And unless costs can be controlled, we shall all suffer. It was hoped in the beginning that there would be steady progress toward expansion of state Medicaid programs. Given the current inflationary situation, we are all having to increase our expenditures to cover even our original services.

We need all the help you can give us on costs.

I am not trying to take bread out of your mouths—I am asking you to give us the benefit of your creative and experienced thought on the matter. Seventy per cent of the Medicaid dollar goes for institutional care. Of this, 39 per cent is for inpatient hospital care and 31 per cent is for nursing home services. Physicians' services account for eleven per cent, dental care for six per cent, prescribed drugs for seven per cent, and other miscellaneous services for the final six per cent.

Long-term human and medical economy obviously demands emphasis on preventive services so that there will be less need for inpatient hospital care and long term skilled nursing services. As physicians we need no convincing here. But our lay friends and neighbors are not always sure about this. To the layman it often seems that the best way to cut Medicaid costs is to provide services only when people really need them, only when they are really sick. You might be interested to know that some states have elaborate pre-authorization requirements for other than emergency services. In one state the officials in the central office make some 10,000 individual pre-authorization decisions a month.

As physicians we know that underutilization is not an economy. We also recognize the problem of potential overutilization.

Faced with abnormal billings from one area—for both drugs and physicians' services—one state sent out experienced interviewers to talk with the patients involved. They found a serious need for patient education, and are planning to work with the state medical association on the problem. For one thing,

many of the patients had a kind of an idea that if they didn't use their Medicaid cards just about every day they would lose them. So there was a tendency to lend cards out to non-card-carrying friends and neighbors who were going to town. Almost every common cold for miles around was costing the program well over ten dollars.

The interviewers also found an overdependence on medicines. In one instance a family had something like 33 different medicine bottles going at the same time, medicines that had been prescribed at one time or another over the years—and never discontinued. This kind of overutilization is not to the patient's advantage.

Neither is caring for a patient in a facility that provides a more intensive level of care than his current condition requires. In the long run, great savings can be effected here without sacrificing the well-being of a single patient.

Among the 1967 amendments to the Medicaid legislation were several leading in this direction. Recent administration proposals for controlling Medicaid costs point the same way. I refer to requirements for the on-going assessment of patient needs and the establishment of home health services and intermediate care facilities as alternatives to the more costly skilled nursing home services and inpatient care. When I was practicing, I often was able to get my patients home faster from the hospital by arranging to have my nurse drop by for a few days. The patients got better faster, family dislocation was minimized, and there was a substantial financial saving for the patient. Home health services are at present an optional Medicaid offering. In July of 1970 they become a federal requirement of all Medicaid programs.

As physicians we know that home health services are not in themselves cheap. Even so, we hope that as these services are expanded there will be economies possible, particularly in taking some of the pressure off long term care facilities which now are in short supply. Not all patients can be cared for at home. Some have no homes at all, and some have homes which for one reason or another are unsuitable. But for the patients for whom home health care is appropriate, this alternative to institutional care will mean greater involvement in the on-going life of the real world as well as potential economies to the program.

The quality of these home health services will be largely dependent on the attention given them by the local medical community. And the well-being of the patients so served will be dependent on your on-going assessment of their current needs. You will have government standards to back you up in your endeavor to assure high quality in these expanding home health services.

The 1967 amendments also formally define the intermediate care facility. This is for patients who, although they need more care than they can receive at home, do not need the services furnished by a skilled nursing home. In the words of the law, they are individuals who "because of their physical or mental condition (or both) require living accommodations and care which, as a practical matter, can be made available to them only through institutional facilities; and do not have such an illness, disease, injury, or other condition as to require the degree of care and treatment which a hospital or skilled nursing home (as that term is employed in Title XIX) is designed to provide."

I want to emphasize here that intermediate care facilities are no more intended to be second-rate skilled nursing homes than skilled nursing homes are intended to be second-rate hospitals. The function is very different, and each must be good of its kind. With on-going assessment of the current needs of individual patients, placement can be changed as conditions warrant, changed to more intensive care or changed to less intensive care. Here again, you will have standards to back you up in your endeavor to see to it that your community's intermediate care facilities are adequate for your patients' needs.

Among the requirements is the continuing care of the patient's own physician, with visits and examinations from the physician at least quarterly and more often if so indicated by changes in the patient's needs. Another requirement is for regular review by or on behalf of the state agency, review focussed on the care being given individual patients. These reviews are to be performed by professional teams no member of which has a financial interest in the institution.

You probably are more familiar with the requirements for skilled nursing homes. For a skilled nursing home the law requires "an organized nursing service for its patients, which is under the direction of a professional registered nurse who is employed full-time by such nursing home, and which is composed of sufficient nursing and auxiliary personnel to provide adequate and properly supervised nursing services for such patients during all hours of each day and all days of each week." Continuing care by a patient's own physician is again a requirement, with visits at least quarterly and more often if so indicated. The review requirements parallel those for intermediate care facilities.

In one state a county medical society has for many years considered itself responsible for reviewing the care furnished in the county's nursing homes. Certainly it is a comfort to a physician to know that his nursing home patients are getting the care they re-

quire, and getting it in an appropriate setting. Here again government standards strengthen your stand—and your hand—as you endeavor to assure appropriate care for your patients.

And so we progress to inpatient care. When inpatient care is essential nothing can take its place. When inpatient care is not essential, it is an extravagance which we are learning to avoid. I think many physicians, patients and hospital administrators tended for a while to think that anything insurance paid for was free, so that the patient might as well go into the hospital a day or two early and stay on at the hospital a day or two longer. Just to make things a little easier, just to be sure everything was all right. Now we are all realizing that insurance isn't free, that the money insurance pays for services comes from somewhere, just as the money government pays for services comes from somewhere. So, to take the strain off inpatient care facilities, and to take the strain off insurance funds and government appropriations and private savings accounts, we are trying to reduce the number of inpatient days, individual case by individual case, never sacrificing the well-being of the individual patient but trying never just to add another day or two because it can be paid for. And so, you see, we come back to the significance of the administration's Hill-Burton proposals and to the hope that Hill-Burton will help to provide extended care facilities, skilled nursing homes, and neighborhood health centers.

Ambulatory Comprehensive Care Clinics

Before we turn to children and the administration's plans for special emphasis on the early years of life, you might be interested to know of a bill introduced just last Thursday (May 1, 1969) by Senator Percy on behalf of himself and an imposing array of 22 other senators, including leaders from both parties. The bill would appropriate a total of \$295 million for the year ending June 30, 1970, to assist states in the development of ambulatory comprehensive care clinics. These neighborhood centers are to be associated with an accredited hospital center and staffed by a formal or informal group of licensed medical doctors of various specialties. They are to provide a wide range of diagnostic and treatment services including personal preventative services and health education. Priority for the establishment of such clinics is to be given to areas of low physician accessibility. All such projects must be consistent with comprehensive plans provided for under the Comprehensive Health Planning legislation. In regard to payment for services and staffing of the centers, Senator Percy had this to say:

I cannot emphasize too strongly that if we are to get the most from our health dollar we must take into

consideration alternative approaches to funding. Experience with health insurance programs based on the fee-for-service approach has shown that they are usually associated with increased hospital utilization. Many services are not reimbursable unless delivered in the hospital and there is therefore no economic incentive for preventive medicine; again, diseases are being treated, not people. Medicaid and Medicare are basically forms of health insurance and have thus encouraged greater hospital utilization. They have also placed a greater demand on the limited supply of practicing physicians. In fact, I am frequently asked where I expect to find the physicians to staff these clinics.

In answer to this question I can point out that the group-practice approach, with the employment of sufficient para-medical personnel, is itself a partial solution to the physician manpower shortage. In this regard, I received the following letter from Dr. Harold Wise, program director of the OEO Montefiore neighborhood medical care:

"The use of paramedical personnel to increase physician productivity has been well documented. We plan to serve a community of 45,000 people. Traditionally, this would require a minimum of 60 physicians. With the more intelligent utilization of nursing and family health worker personnel, we are able to reduce the number of physicians necessary to 25."

As a matter of fact, in several states, Medicaid includes prepayment plans. Any state may, if it chooses, pay membership dues or premiums for Medicaid-eligible individuals and families instead of reimbursing practitioners and suppliers for individual services rendered. San Joaquin County, California, and Clackamas County, Oregon, are areas where physicians have banded together to make such arrangements both possible and practicable. Others are being established elsewhere.

There is no way of knowing what will happen to Senator Percy's bill, but it seems likely that there will be increasing interest in neighborhood centers and increasing dependence on prepayment plans. Both neighborhood centers and prepayment plans encourage continuity of preventive care. And prepayment plans have the additional advantages of making budget planning less difficult for state agencies.

Control of Costs

As predicted, the question of cost control has been with us ever since I began, in one way or another. Our major hopes in this direction lie in improving our preventive services so that the needs for acute and long term services can be reduced. Continuing efforts in the direction of patient education and appropriate procedures for utilization review are also among the essentials. More efficient management procedures will also help.

Two or three other steps have been proposed by the administration. One, relevant only to Medicaid, is the elimination of orthodontia from federal financial participation. More significant are changes in reimbursement procedures for hospitals and for professional practitioners. In computing reasonable costs for inpatient care for both Medicaid and Medicare, there has until now been an allowance of 1½ or 2 per cent for contingencies. This allowance will no longer be permitted.

Until now each state has worked out its own reimbursement procedure for all services except hospital inpatient care. Now the basis for payments to physicians and other individual practitioners by states under Title XIX is being reviewed and it appears that a ceiling may be imposed.

Emphasis on Childhood Development

And now to the new emphasis on early childhood development. Back in the middle of February, President Nixon called for "a national commitment providing all American children an opportunity for healthful and stimulating development during the first five years of life." This struck a welcome note everywhere among people who have become increasingly aware that inadequate care and services in these early years can lead to a tragic waste of human potential.

The first step in fulfilling this commitment was the delegation of Head Start to the Department of Health, Education, and Welfare where it could be "supported and supplemented by other federal programs dealing with children in the early years." The second step was the creation of an Office of Child Development reporting directly to Secretary Finch of HEW. This office, according to Mr. Nixon, "must take a comprehensive approach to the development of young children combining programs which deal with the physical, social, and intellectual."

This office is to have direct access to Mr. Finch and is expected to be responsible for day care programs, Head Start, and other early childhood programs now handled by the Children's Bureau. It is likely that Medicaid's activities in regard to early childhood development will be closely related to this new Office of Child Development.

I hope you share my enthusiasm for what this new emphasis on the very earliest years may mean to the future of this country.

This leads me to my final point—our goals. Medicaid's immediate goal was to improve and unify the assorted medical assistance offerings of the separate categorical public assistance programs. The ten-year goal established by Congress in 1965 was com-

prehensive medical care by 1975. There has never been a formal definition of comprehensive medical care, but even without one we know that coming even close to comprehensive medical care for substantially all needy people by 1975 is going to take more of everything than we are likely to have by then, even if we go at it full steam ahead. Nonetheless, this goal was endorsed by the American Medical Association. And this goal has shaped our thinking about Medicaid.

Last week a piece of paper went across my desk describing a laudable enough project—but giving as one of its goals this desideratum: to reduce the rodent infestation from 52 per cent to 43 per cent. Now, I am frank to admit that I don't know what they mean by a 52 per cent rodent infestation. Rats in 52 per cent of the houses? Rats in 52 per cent of the alleys? Rat-bites on 52 per cent of the children? I don't know. But I do know that if it is worth while to get rid of rats, it is worth while working to get rid of *all* the rats, not just to reduce the infestation of rats from 52 per cent to 43 per cent. If I am working on a program I want a goal worth working for, a goal worth struggling for, a goal that keeps my horizons broad and calls forth the very best that I've got.

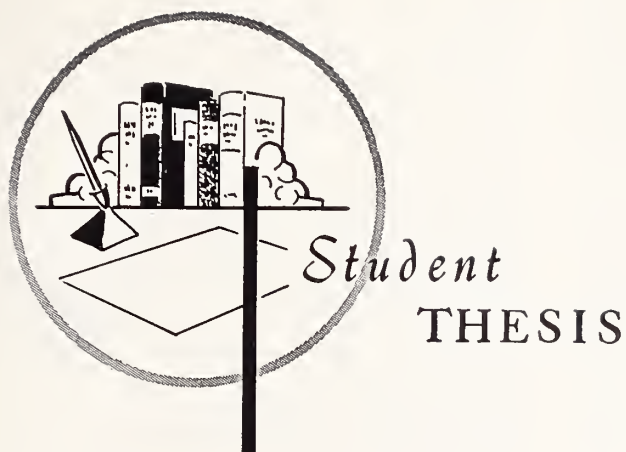
Government and the future practice of medicine? It is my faith that government will be with you, a strong supporting partner in your practice of medicine as you work toward getting comprehensive care to substantially everyone.

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Cryoglobulinemia

LOREN K. TSCHETTER, M.D.,* Rochester, Minnesota

Introduction

A CRYOGLOBULIN is defined as a serum globulin or several serum globulins that have the common property of precipitating or forming a gel in cold serum. The cryoprecipitation or gel formation must be reversible at 37 C. The temperature at which cryoprecipitation occurs depends upon the individual cryoprecipitate or cryogel.

Historical Aspects

Wintrobe and Buell in 1933 reported on what now is considered the first recorded case of cryoglobulinemia. The patient was a 56-year-old female who had cold sensitivity manifested by Raynaud's phenomenon, thrombosis of the retinal veins, and complaints of pain in her shoulders. When the patient's serum was cooled, a viscous yellow layer was noted above the clot and a white floccular material was noted in the serum. The precipitate dissolved when the serum was warmed to 37 C. The patient had an elevated serum protein. At autopsy the patient was shown to have had multiple myeloma.

Jan Waldenström in 1944 gave the following description of what he called a very curious phenomenon. "The serum from one of the here published patients showed a very curious phenomenon. . . .

His serum and plasma were at room temperature highly viscous. . . . If a sample is left in the ice chest at 4-5 C, it develops into a jelly and gets white and opaque. At higher temperatures it is possible to 'thaw' it up again. The sample then 'melts' peripherically leaving a solid centre."

Lerner and Watson in 1947 introduced the name cryoglobulin for globulins which demonstrated cryoprecipitation as defined in the introduction. The derivation was from the Greek KRYOS meaning cold and globulin. In their paper they discussed a patient who, like Wintrobe's patient, had cold sensitivities, which resulted in purpura. This purpura was progressive; the patient eventually died of chronic glomerulonephritis. He had edema, pleural effusions, ascites, and severe purpura. This patient prompted Lerner to study cryoglobulins in more detail. He investigated a series of 121 patients with various pathologic conditions and 40 normal persons. None of the normal persons had cryoglobulins. Thirty-one of the former had cryoglobulins. There were three grades of cryoglobulins as noted in the following chart.

	<i>Cryoprecipitate Concentration in Milligrams Per Cent</i>	<i>Time for Appearance</i>
Grade 1	Trace to 6	24 hours to 1 week
Grade 2	6-25	24 hours
Grade 3	26 and above	Immediately

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Tschetter recently completed his internship at St. Francis Hospital, Wichita. He is now a Fellow at the Mayo Graduate School of Medicine, Rochester.

Only one of the patients had a grade three cryoglobulin. Twelve had a grade two cryoglobulin and 18 had a grade one cryoglobulin. When ultraviolet absorption studies on the cryoprecipitates were done, their absorption curves were compatible with those of the serum globulins. The cryoglobulins were composed of small, discrete, white particles. From these particles Lerner differentiated a delayed fibrin clot which was a discrete mass, like a gel, that was not again soluble at 37 C. If the serum was lipemic, there was a small white ring at the liquid-tube interface. He therefore recommended that all serum samples be taken in a fasting state when one desired to demonstrate cryoglobulins. His conclusion was that the cryoglobulins were a nonspecific indicator of disease, much like fever, increased erythrocyte sedimentation velocity, and other general symptoms.

Classical Clinical and Physical Findings

Farmer, in a study on cryoglobulins from patients seen at the Mayo Clinic, discussed the clinical and physical findings. There were 12 patients in his series: seven with multiple myeloma, one with macroglobulinemia, and four which were considered idiopathic. These patients showed a peculiar sensation to cold. They developed an intense blue color of their hands, feet, arms, legs, face, nose, and ear lobes when exposed to cold. Petechiae were common. At times the areas with petechiae progressed into ulcerated states with necrosis and gangrene following. Oronasal bleeding was common. Occasionally, visual acuity decreased with cold exposure, deafness became apparent, dyspnea occurred, and stomatitis or melena were seen. Ocular findings included dilated retinal veins with sausage-like constrictions, hemorrhages, and exudates.

The above symptomatology is usually seen in patients with IgG or IgM paraproteins either in multiple myeloma or macroglobulinemia. Other general laboratory items seen in these patients are anemia and an elevated sedimentation rate of 100 to 150 millimeters per hour at 37 C, but a markedly slow sedimentation rate (4 to 5 millimeters per hour) at 4 C. Hypergammaglobulinemia is usually seen in these two diseases. The hypergammaglobulinemia is usually reflected as a spike in the gammaglobulin range on serum protein electrophoresis. The amount of cryoglobulin seen is in the range of 3 to 4 grams per cent. The serum total protein may well be in the range of 10 to 15 grams per cent reflecting the hypergammaglobulinemia.

Recently a group of patients with cryoglobulinemia has been described in which the cryoglobulin was a mixed type composed of either IgG-IgM or IgA-IgG. These patients often present with purpura, weakness, arthralgias, and rarely with acute diffuse

glomerulonephritis which has resulted in death. Meltzer studied 11 patients who had mixed cryoglobulinemia and only one of them had multiple myeloma and one likewise had macrogammaglobulinemia. The remaining patients seemed to form a new group of patients with cryoglobulins which will be discussed in the next section. These patients frequently had an associated anemia and a less severe hypergammaglobulinemia without a spike in the gammaglobulin range on serum protein electrophoresis. They often had mild generalized lymphadenopathy, mild splenomegaly, and hepatomegaly. The amount of cryoglobulins seen were in the range of 60 to 100 milligrams per cent.

The Present Understanding of Cryoglobulins

There are essentially two broad classes of cryoglobulins recognized in the recent literature. The first is the classical IgG and IgM paraprotein seen in either multiple myeloma or Waldenström's macrogammaglobulinemia. Most of the cryoglobulins in this class are from multiple myeloma and only an occasional one from Waldenström's macrogammaglobulinemia. The percentage of patients who have multiple myeloma and a cryoglobulin is less than five per cent, making the occurrence of a cryoglobulin uncommon in multiple myeloma.

The second class is the mixed cryoglobulins. Rarely are they found in multiple myeloma or macrogammaglobulinemia. Usually they are found in patients with a symptom complex of purpura, weakness, arthralgias, and occasionally these combined with acute diffuse glomerulonephritis, vasculitis, and endocarditis.

LoSpalluto in 1962 first described the mixed type in a patient with pancytopenia and renal tubular acidosis. This cryoglobulin was composed of a 19s and a 7s constituent in ultracentrifuge analysis. The isolated 19s component acted like a rheumatoid factor: it precipitated human gammaglobulin coated latex particles, agglutinated human gammaglobulin sensitized tanned red cells, but did not agglutinate sensitized sheep red cells. However, it did not stay combined with the 7s component in ultracentrifugation and appear as a 22s fraction as does the rheumatoid factor. There was a soluble 22s component in the serum. This may represent soluble IgG-IgM complexes. By immunoelectrophoresis the 19s component was identified as an IgM globulin and the 7s component as an IgG globulin. If the IgM globulin and the IgG globulin were separated, neither had any cryoprecipitability. In combination, cryoprecipitability was regained. A cryoprecipitate formed when IgG from normal serum was added to the IgM from the cryoglobulin; however, if IgM from normal serum was added to the IgG from the cryoprecipitate, no cryo-

precipitate formed. LoSpalluto's conclusion was that the property of cold precipitation resided in neither of the substituents of the cryoglobulin but stemmed from the capacity of one of the constituents, the 19s component, to combine with 7s gammaglobulin to form a complex insoluble at 4 C and soluble at room temperature.

Balazs in 1963 also reported on six isolated cryoglobulins of the IgG-IgM type. In five of the six cryoglobulins the IgM component also precipitated human gammaglobulin coated latex particles and human gammaglobulin sensitized tanned red cells.

Peetom in 1965 noted similar cryoglobulins in 15 patients. He felt the IgM-IgG complexes were present at 37 C and they agglutinated or precipitated at lower temperatures, the agglutination or precipitation being reversible when the temperature of the serum returned to 37 C. He therefore proposed simply an agglutination or precipitation of an already present immune complex when conditions of temperature changed. This reversibility was better in serum than it was when the cryoglobulins were in solution in the purified form. The 15 patients were an interesting group and the following is a list of their symptoms and diagnoses:

- Thrombocytopenic purpura
- Thrombocytopenic purpura, anemia, kidney dysfunction
- Thrombocytopenic purpura, hematuria, kidney dysfunction
- Purpura, rheumatic pains
- High ESR, glomerulitis, anemia, enlarged liver
- Rheumatic pain, liver disease
- Diabetes, chronic bronchial infection
- Fever, exanthema, swelling of lymph nodes
- Anemia, enlarged liver, bone marrow abnormality
- Rheumatoid arthritis, anemia
- Anemia, high ESR
- Cirrhosis of the liver
- Sjögrens syndrome
- Rheumatic pains
- Rheumatoid arthritis
- Four cases of SLE

Meltzer in 1966 reported on 12 cases with cryoglobulinemia of the mixed type. One patient had multiple myeloma, one had macroglobulinemia, and another patient had rheumatoid arthritis. The last patient had a unique cryoglobulin composed of an IgG polymer. The remaining patients had the symptom complex of purpura, weakness, arthralgias, and in three patients acute diffuse glomerulonephritis. The patients in general had minor lymphadenitis, mild hepatomegaly, or splenomegaly. None of the patients had spikes in the gammaglobulin range on serum

electrophoresis. They did have general increases in the gammaglobulin range. The cryoprecipitates were like those described by LoSpalluto. The 19s component and the 7s component were present in a 60/40 percentage ratio respectively. Carbohydrate values were 3.6 per cent; this is between the IgG and IgM values for carbohydrate content. In seven of the patients the serum complement level was low or absent. In the three patients who died of acute glomerulonephritis, autopsy revealed changes in the glomeruli, in some vessels, and in local areas of the endocardium much like those changes produced in passive serum sickness by McCluskey. One of the kidneys studied by immunofluorescence technique showed IgG-IgM complexes present in the affected glomeruli. Meltzer concluded that the IgG-IgM complex was an immune complex. He proposed that the IgM globulin was an auto-antibody produced by an auto-immune phenomenon against the IgG antibody. He also concluded that the complexes located in the glomeruli, vessels, and endocardium may have been responsible for the patient's disease process.

Riethmuller studied Meltzer's patients and analyzed the serum complement levels. She found that six of the eleven patients had serum complement levels of 0 to 60 units, the normal being 350 to 650 units. She also noted that the serum complement levels in patients with SLE were below normal, being in the range of 82 to 380 units. She showed in her studies that complement was not bound to the IgG-IgM complexes. The deficiency was in the C₁ portion of complement.

Balazs showed both the serum after the removal of the cryoglobulin and the cryoglobulin had an anti-complementary effect. Meltzer noted 22s complexes in the serum after the removal of the cryoglobulins, which he concluded were soluble IgG-IgM complexes. One might then be able to conclude that the IgG-IgM complex was anticomplementary in nature. Balazs noted when the cryoglobulin was heated to 56 C for 30 minutes the anticomplementary effect was lost, but the cold precipitability and the rheumatoid factor activity were not lost. This raised the question as to whether the cryoglobulin may inhibit some complementary dependent immunological process and thereby produce a disease process. Since the cryoglobulins retained their ability to act as cryoglobulins after being at 56 C for 30 minutes, this may indicate that complement is not a part of the cryoglobulin as Riethmuller suggested.

Wagner in 1967 reported on three cases of mixed cryoglobulinemia in which the cryoglobulin was an IgA-IgG complex. All three of the patients had cold sensitive arthralgias, two of the patients had purpura of the lower extremities, and one patient had hematuria. None of the patients had fever or enteric com-

plaints. No other diagnosis could be made in the first patient. When the patient was treated with a daily dose of prednisone, 30 milligrams for three weeks, the purpura and hematuria were no longer present; however, the cryoglobulin remained present in the same amount. In the second patient a histological diagnosis of glandular toxoplasmosis was made. In the third patient a diagnosis of latent syphilis was made. The cryoglobulinemic serums as well as the isolated cryoglobulins possessed a strong anticomplementary effect. This effect was thermolabile at 56 C. Two of the complexes had trace amounts of a β_{1A} globulin present. This, according to Wagner, may mean complement is actually bound to the complex since the β_{1A} globulin represents a portion of complement. The cryoglobulins, when isolated, did have a positive latex fixation test in two of the patients. The whole serum did not have a positive latex fixation test. The quantities of cryoglobulin were too small to allow for dissociation and reprecipitation studies.

Cryoglobulins have been seen in other isolated states, in addition to the symptom complex mentioned with the IgG-IgM or IgA-IgM cryoglobulins, multiple myeloma, and macrogammaglobulinemia. These will be mentioned briefly.

Catsoulis noted large amounts of cryoglobulin during the anamnestic response in rabbits that had been hyperimmunized with a polyvalent pneumococcal vaccine. The cryoglobulins belonged to both the IgG and IgM globulins. They were active antibodies when exposed to pneumococcal organisms. The rabbits with cryoglobulins had higher titers of activity against pneumococcal organisms. The cryoglobulins disappeared five weeks after vaccination and the rabbits suffered no ill effects.

Turkington reported one case in which IgG-IgM cryoglobulins with a positive latex fixation test were found before other symptoms appeared in a case of sarcoidosis. He raised the question of there being a fault in the immune mechanism since IgM antibodies are the first to appear and IgG antibodies appear later in a normal immune reaction. He questioned if there was a block in the 7s, IgG, mechanism. He noted that rheumatoid factor, cold agglutinins, heterophil antibodies, and typhoid O antibodies were all 19s antibodies. It is of interest to note that cryoglobulins have been reported in rheumatoid arthritis associated with cold agglutinins, and in a case of infectious mononucleosis. Nineteen s antibodies may also be present in SLE and syphilis; cryoglobulins have been seen in both of these diseases.

Christian has noted cryoglobulins in active SLE. Some of these patients have had renal disease. They were of the mixed type and were IgG-IgM complexes. She reported on nine patients all of whom had fever and arthritis. Eight patients had skin lesions

typical of lupus and six had positive LE cell preparations. The IgG-IgM cryoglobulins contained a larger amount of IgG than IgM, and required a heat labile substance, later identified as the C_{1q} fraction of C_1 complement, for precipitation. She concluded that since the cryoglobulins were seen only in active SLE, they may have something to do with the activity of the disease. However, another yet unknown factor may be the factor in disease activity and cryoglobulin formation.

Mustakallio reported on the incidence of cryoglobulins in syphilis. Thirty-nine patients out of 261 had cryoglobulins; 27 out of 261 had rheumatoid factor; and only four patients had both. Symptoms from the cryoglobulins were rare. Four of the cryoglobulins were analyzed and they were IgG-IgM in type. The precipitate was slow in forming. The cryoglobulins were found with increasing age of the patient and more advanced stages of syphilis. The rheumatoid factors were associated with age increase in the patient more than with the stage of syphilis. He questioned whether these patients could have a block in the 7s mechanism of their immune reaction system which increased with age. The rheumatoid factors and cryoglobulins were not reversible with treatment.

Matthews reported on 60 cases of leprosy in which 46 had cryoprecipitates. These cryoprecipitates migrated with the gammaglobulins in the protein electrophoresis. The cryoglobulins were found in the active cases of leprosy and were not present in inactive cases or cases being treated with corticosteroids. The highest levels of cryoglobulins were present in the leprosy cases complicated with erythema nodosum.

Cryoglobulins have been reported in subacute bacterial endocarditis (SBE). It is interesting to note that Williams in 1962 reported the presence of rheumatoid factor activity in 50 per cent of the patients with SBE in his series. The rheumatoid factor was seen in all types of organisms but was highest in the streptococcus viridans infections. The latex fixation test was positive but the sheep sensitized agglutination test was negative. The rheumatoid factor was reversible with antibiotic therapy. Eight patients had focal embolic glomerulitis or diffuse subacute glomerulonephritis associated with their SBE. At the time when the glomerulitis occurred, all of these patients had decreased serum complement levels. The glomerulonephritis had been explained by minute bacterial emboli in the past; however, Williams raised the possibility that it may be caused by an immune mechanism.

Moresson reported one case of a cryoprecipitate that was composed of fibrinogen and a β_1 globulin. This complex resulted in a chronic intravascular coagulation syndrome which appeared in a patient who later died of an ovarian malignancy. Cryoglobulin-

emia appeared before there was any evidence of neoplasia.

Lewis reported one case of a cryoglobulin that was composed of an IgM globulin and a β -lipoprotein. This complex acted similar to the IgG-IgM complexes. If the two components were separated, neither had cryoprecipitability, but when combined again a cryoprecipitate formed. Any normal β -lipoprotein could be added to the patient's IgM and a cryoprecipitate resulted; however, the converse was not true. The two components separated easily on ultracentrifugation, immunoelectrophoresis, and with serum electrophoresis as did the IgG-IgM complexes.

Cryoglobulins have also been noted in chronic lymphocytic leukemia, Sjögrens syndrome, thyroiditis, lymphosarcoma, Kala agar, periarteritis nodosa, coronary artery disease, polycythemia vera, portal cirrhosis, and assorted malignant tumors.

The Laboratory Diagnosis of Cryoglobulinemia

A useful screening test for increased amounts of macroglobulins is the Sia test. One drop of serum is added to ten milliliters of distilled water. If there is an increase in serum macroglobulins, a cloudy precipitate or opacity will be seen as the serum falls inferiorly through the water. At best, however, this is only a rough screening test.

The laboratory approach to cryoglobulinemia should include the routine collection of serum at 37 C. The serum is then cooled to 4 C for 24 hours. If a precipitate or gel forms, and dissolves when the serum is returned to 37 C, one may assume that a cryoglobulin is present.

In order to do special studies on the cryoglobulin, the precipitate is washed several times in normal saline at 4 C. The precipitate is then dissolved in 0.1 HCl. With this solution various studies can be done at will. These studies include routine electrophoresis, immunoelectrophoresis, ultracentrifugation, selective antigen determination (IgG, IgM, IgA, fibrinogen, etc.) and rheumatoid factor activity. The anticomplementary effect of the cryoglobulin can be tested with hemolysin technique.

On the patient's serum, serum protein electrophoresis, immunoelectrophoresis, quantitative immunodiffusion, and ultracentrifugation can be done. The rheumatoid factor activity of the serum and serum complement level can also be measured.

The Treatment of Cryoglobulinemia

If the cryoglobulin is present because of a lympho- or myeloproliferative disorder the treatment is that which is considered best for the specific disorder. Included in the treatment should be the avoidance of cold until the cryoglobulin is present in a smaller amount or is less symptomatic.

The treatment of the mixed cryoglobulins is not nearly so clear; in fact, almost no mention is made of treatment in the literature. If the basic problem is a myeloproliferative disorder, as it rarely is, the treatment would be the same as has been already noted. If there is any chronic infectious process, this should be treated. For the vast majority of the mixed cryoglobulins there is no known treatment. Corticosteroids and chlorambucil have been used in some cases with varying results.

Summary of the Current Concepts of Cryoglobulins

About half of the cryoglobulins seen are associated with multiple myeloma and Waldenström's macrogammaglobulinemia. These cryoglobulins are paraproteins most likely produced by an abnormal cell in the marrow and are usually pure IgG or IgM globulins. They are usually present in large amounts, three to four grams per cent, and are often discovered after the patient relates symptoms of cold sensitivity or by accident when the laboratory is working with a patient's serum and has difficulty because a cryoprecipitate or gel forms.

There seem to be an equal number of cryoglobulins of the mixed type composed of IgG-IgM complexes and rarely other globulins or protein moieties. There is a strong possibility these are due to an immune mechanism, but the exact relationship of the cryoglobulins to disease is not known. Meltzer states, "It should be stressed that the role of these mixed cryoglobulins in the production of the active disease state is by no means a proven fact and that they may well represent only a by-product of the disease." They are found in smaller amounts, 60 to 100 milligrams per cent, precipitate slowly, and therefore are easily missed unless one is specifically looking for them. This type of cryoglobulin should be considered in the collagen grouping of diseases, in the disease states where there may be an increase in gammaglobulins, such as chronic or subacute infectious processes, and this type of cryoglobulin should be strongly considered if the patient matches the symptom complex as outlined by Meltzer and others.

It is not known why these globulins have the ability to precipitate or form a gel at decreased temperatures. There is a marked influence by pH, salt concentration, and increased urea concentration on the precipitation ability. This probably means that the precipitation is a form of protein-protein interaction, probably mediated by weak covalent bonds. It has also been proposed that SH groups and the folding of the molecules may have an effect on cryoprecipitation.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.

Clinical Cardiology

Treatment of Shock Following Myocardial Infarction

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WHILE NEWER REFINEMENTS in patient monitoring and management have significantly reduced the mortality from acute myocardial infarction, the occurrence of shock still carries a grave prognosis. Once shock develops the survival of the patient is entirely dependent on the perception, attentiveness and judgment of his physician.

Shock is characterized by a critical reduction in tissue perfusion. Inadequacy of blood flow impairs organ function and disrupts the integrity of normal metabolic pathways. If shock is not promptly corrected, the flow deficiency leads to organ damage, metabolic acidosis and a vicious circle resulting in progressive circulatory deterioration and death. The sooner the syndrome can be recognized the more likely is therapy to be effective. The need for prompt recognition of shock must not, however, be satisfied at the expense of "over-diagnosis." It is in this initial evaluation that the physician's perceptiveness is critical. He must be able to recognize the difference between the mildly hypotensive patient who is adequately perfusing his tissues (and needs no immediate treatment) and the patient who is in the incipient stages of shock and requires prompt therapy to restore peripheral blood flow.

In considering the diagnosis of shock attention should be given to the following signs:

1. *Skin temperature.* Warm skin indicates adequate cutaneous blood flow and usually a fairly well maintained cardiac output. Cool, clammy skin indicates sympathoadrenal discharge, a sign of reflex vasoconstriction in response to a fall in cardiac output.

2. *Peripheral pulses.* Thready or absent brachial and radial pulses indicate either severe hypotension or more often intense vasoconstriction. In either case urgent treatment is indicated. Femoral artery pulsation will be very weak if the patient is hypotensive but the pulsations are bounding in the presence of peripheral vasoconstriction.

3. *Auscultatory blood pressure.* This is not a reliable guide to intra-arterial pressure in shock. A low cuff pressure has the same significance as weak upper extremity pulses. However, an absent auscultatory pressure usually indicates inadequate blood flow and the need for treatment.

4. *Mentation.* If the patient is alert and responsive cerebral blood flow is probably adequate. Agitation, confusion or somnolence are signs of deficient cerebral blood flow and usually are associated with a fall in arterial pressure.

5. *Urine output.* Urine flow less than 20 ml/hour with a low urine sodium concentration is evidence of inadequate renal blood flow which, if not corrected, can lead to tubular necrosis.

6. *Cardiac function.* Persistent or recurrent chest pain or arrhythmias in the presence of other signs of hypotension may be accepted as presumptive evidence of functional impairment of coronary blood flow.

7. *Acidosis.* Low arterial blood pH and elevated blood lactate mean reduced tissue oxygenation. Arterial blood gas and pH studies are invaluable in the management of patients in shock.

The presence of one or more of the above signs of inadequate tissue blood flow in a patient with an acute myocardial infarction is presumptive evidence of shock. Mild hypotension in the absence of any of these signs should not be diagnosed or treated as "shock."

When the diagnosis of shock has been made, several questions regarding the hemodynamic status of the patient should be answered before definitive treatment can be instituted:

1. *Is the patient severely hypotensive?* Hypotension is an immediate threat to life because of the associated impairment in cerebral and coronary blood flow. Since the cuff pressure may be low even though arterial pressure is normal, the strength of femoral arterial pulsations often is a more reliable guide to blood pressure. In some patients direct recording of arterial pressure may be necessary.

2. *Is blood volume adequate?* Some patients become hypovolemic in the hours following an acute

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myocardial infarction and the reduction in plasma volume may then become an important factor in the genesis of shock. The central venous pressure (CVP) is a vital guide to the adequacy of circulating volume and should be monitored in all patients with shock. This can be accomplished by threading a catheter through a needle in the brachial, femoral or subclavian vein and advancing it into the thorax. A low CVP (less than 6 cm H₂O with the zero level at the mid-chest) is an indication for a trial of volume expansion. In myocardial infarction the left ventricle often is in failure while CVP is normal. Therefore, volume expansion should be carried out cautiously. A rise in CVP of more than 2 cm H₂O during infusion of dextran, saline or other fluid indicates that volume has been adequately restored. If shock is not corrected by volume expansion the presence of significant left ventricular failure can be assumed.

3. *Is cardiac function severely impaired?* If peripheral blood flow is markedly reduced and the CVP is high, then myocardial failure is obviously an important factor in the shock. Heart rate is not a very useful index of cardiac function. Indicator dilution cardiac output data are of value in the evaluation of myocardial function in selected cases.

4. *What is the status of the peripheral vessels?* Is there evidence of intense sympathetic discharge? This usually is manifested by cutaneous vasoconstriction and indicates renal vasoconstriction as well. In early stages of shock peripheral constriction may support fairly normal arterial pressure despite progressive tissue hypoperfusion and lactic acidosis.

The purpose of therapy in shock is to restore adequate organ perfusion. Effective therapy must be based not only on an understanding of the physiological disturbance in the individual patient but also on a thorough understanding of the pharmacological action of the useful drugs.

The following drugs may be valuable in certain patients with cardiogenic shock:

1. *Isoproterenol*. This is a catecholamine with pure beta adrenergic activity; that is, it stimulates the heart and dilates peripheral vessels. It is probably the agent of choice when impairment of cardiac function has led to severe reduction in cardiac output, especially when reflex vasoconstriction is present. Isoproterenol 1 or 2 mg should be diluted in 500 ml 5 per cent dextrose in water and the rate of infusion gradually increased until the signs of shock are corrected or cardiac rhythm disturbance limits further administration. In some cases the concentration of isoproterenol must be increased as

much as 2 mg/100 ml to obtain a satisfactory effect. Lidocaine may be effective in controlling ventricular irritability during isoproterenol infusion. In some hypotensive patients isoproterenol will not significantly increase arterial pressure and cerebral and coronary perfusion are not improved. In this situation a vasoconstrictor-inotropic agent may be necessary.

2. *Levarterenol (norepinephrine) or metaraminol*. These drugs have an alpha adrenergic effect (vasoconstrictor) on peripheral vessels combined with myocardial stimulating properties. Because these drugs may reduce renal and splanchnic blood flow they should be used only when isoproterenol is ineffective. The infusion rate should be the smallest amount necessary to increase systolic arterial pressure over 100 mm Hg.

3. *Digitalis*. The cardiac glycosides have inotropic effects less potent than the catecholamines. They also have vasoconstrictive properties when used intravenously. It is probably best to treat cardiogenic shock acutely with the adrenergic inotropic drugs above and to administer digitalis orally for its more sustained effect.

4. *Atropine*. If shock is associated with sinus bradycardia, 1 mg atropine intravenously may be effective in restoring heart rate and blood flow. Drugs, such as atropine and isoproterenol, which result in an increase in atrial rate must be used cautiously in the presence of atrioventricular block. Under these circumstances, an increase in atrial rate may result in a decrease in ventricular rate.

5. *Furosemide*. This potent diuretic can help establish urine output in the oliguric patient. After shock has been treated with the vasoactive compounds above a diuretic response to intravenous infusion of 200 mg of furosemide indicates that renal perfusion is adequate. If oliguria persists, however, more aggressive attempts to improve blood flow are necessary.

6. *Sodium Bicarbonate*. If the arterial pH is less than 7.35 sodium bicarbonate should be administered in amounts adequate to restore pH to above that level. Treatment should be initiated with 40-100 meq sodium bicarbonate and further alkali therapy based on arterial blood pH measurements.

7. *Ventricular Pacing*. If shock and marked bradycardia co-exist, increase in ventricular rate via catheter electrode pacing is often of great clinical benefit.

Newer pharmacological approaches such as the use of sympathetic blocking agents and other inotropic drugs, such as dopamine and glucagon, are still in the experimental stage.

(Continued on page 398)

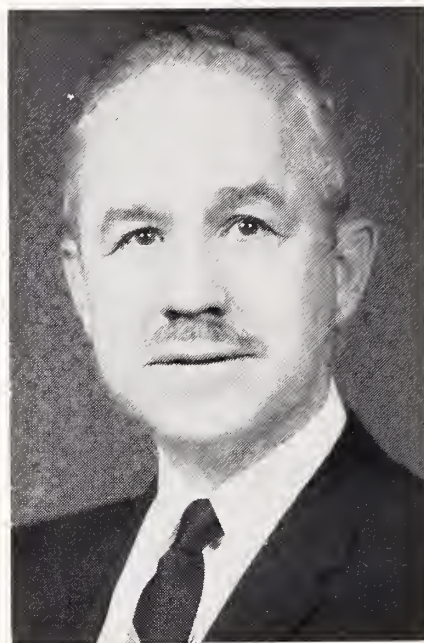
The President's Message

Membership 2,001

The membership of the Kansas Medical Society has remained rather stationary the last 20 years. It is now at a high mark of 1,907, about 50 more than 20 years ago. The Healing Arts Board lists about 2,500 Doctors of Medicine in Kansas.

Some of these are using this as a permanent address while temporarily elsewhere. However, the largest number of physicians licensed but not members of our Society are employed by either a state or federal agency. We hope that we can make our Society attractive enough to these men that they will join. Our Membership Committee last year proposed a "Membership-at-Large" category, but this appeared to be unfair to several of our larger county societies. The committee will be working on a new approach this year and it will probably take the form of a special membership classification within the component society.

We would like very much to attract many of these physicians to membership for several reasons. We feel that they can help us and we can help them. And a rather immediate result of having the first 94 new members would be an additional AMA delegate and alternate delegate for Kansas. This would increase our representation by 50 per cent. The AMA House of



Delegates could certainly use some more good old Kansas common sense.

Most of our potential new members live in our larger counties where the society dues are necessarily rather substantial. It is our hope that these societies, with some suggestions from the Membership Committee, can work out a means of attracting these men and women to join with us.

LELAND SPEER, M.D., *President*



Editorial COMMENT

Four bills of major importance to physicians were passed by the 1969 Legislature and became law on July 1. Each of these broadens to some extent a physician's immunity from professional liability. It is recommended you become familiar with their contents.

One authorizes persons 18 years of age or older to donate blood without parental consent. A second expands the Good Samaritan Act to include minors who may be cared for without parental consent at the time of an emergency, accident, or for injuries resulting from competitive sports. A third permits persons 16 years of age or older to consent for treatment if parents are not immediately available, and the fourth relates to venereal disease care to persons under 21 years of age and provides that parents need not be notified.

HOUSE BILL No. 1176

Any person eighteen (18) years of age or older shall be eligible to donate blood voluntarily without the necessity of obtaining parental permission or authorization: Provided, That any minor shall receive no compensation for any blood donated.

HOUSE BILL No. 1251

Any physician or any other practitioner of the healing arts licensed under the laws of this state, or of any other state, to practice may, in good faith render emergency care or assistance, without compensation, at the scene of an emergency or accident, and shall not be liable for any civil damages for acts or omissions other than damages occasioned by gross negligence or by willful or wanton acts or omissions by such person in rendering such emergency care.

Health Care for Children

Any physician licensed under the laws of this state, or of any other state, to practice medicine or surgery may, in good faith render emergency care or assistance, without compensation, to any minor involved in an accident, or in competitive sports, or other emergency without first obtaining the consent of the parent or guardian of such minor. Such physician shall not be liable for any civil damages other than damages occasioned by gross negligence or by willful or wanton acts or omissions by such person in rendering such emergency care.

Any provision herein contained notwithstanding, the ordinary standards of care and rules of negligence shall apply in those cases wherein emergency care and assistance is rendered in any physician's office, clinic, emergency care and assistance is rendered in any physician's office, clinic, emergency room or hospital with or without compensation.

HOUSE BILL No. 1464

Notwithstanding any other provision of the law, any minor sixteen (16) years of age or over, where no parent or guardian is immediately available, may give consent to the performance and furnishing of hospital, medical or surgical treatment or procedures and such consent shall not be subject to disaffirmance because of minority. The consent of a parent or guardian of such a minor shall not be necessary in order to authorize the proposed hospital, medical or surgical treatment or procedures.

HOUSE BILL No. 1570

Any physician, upon consultation by any person under twenty-one (21) years of age as a patient, may, with the consent of such person who is hereby granted the right of giving such consent, make a diagnostic examination for venereal disease and prescribe for and

treat such person for venereal disease including prophylactic treatment for exposure to venereal disease whenever such person is suspected of having a venereal disease or contact with anyone having a venereal disease. All such examinations and treatment may be performed without the consent of, or notification to, the parent, parents, guardian or any other person having custody of such person. Any physician examining or treating such person for venereal disease may, but shall not be obligated to, in accord with his opinion of what will be most beneficial for such person, inform the spouse, parent, custodian, guardian or fiancé of such person as to the treatment given or needed without the consent of such person. Such informing shall not constitute libel or slander or a violation of the right of privacy or privilege or otherwise subject the physician to any liability whatsoever. In any such case, the physician shall incur no civil or criminal liability by reason of having made such diagnostic examination or rendered such treatment, but such immunity shall not apply to any negligent acts or omissions. The physician shall incur no civil or criminal liability by reason of any adverse reaction to medication administered, provided reasonable care has been taken to elicit from such person under twenty-one (21) years of age any history of sensitivity or previous adverse reaction to the medication.

LABORATORY PROFICIENCY

An opportunity for physicians to evaluate their own laboratories proficiency and quality control is offered in a new Office Laboratory Proficiency Evaluation Program designed by the College of American Pathologists for general practitioners, internists, pediatricians, and others.

Russell J. Eilers, M.D. chairman of the CAP's Standards Committee, said the Proficiency Evaluation Program is directed to the physician who does limited laboratory work for his patients and to small group practices which have laboratories providing limited laboratory services.

Each mailing will contain: (1) a whole blood specimen for a hemoglobin determination, (2) a lyophilized chemistry specimen for a glucose and BUN determination, and (3) a lyophilized urine specimen for specific gravity, protein, reducing substances, bile, and hemoglobin.

Cost of the 1969 testing packet is \$45 and includes two mailing of specimens—one in September and the other in November.

Doctor Eilers explained that the office laboratory program will endeavor to insure high quality laboratory services to patients through interlaboratory evaluation, and "participation will demonstrate a

physician's desire for quality laboratory work and the highest standards of patient care.

"It also will serve as an external quality control program," he said, "and assist the laboratory in evaluating currently used methodology and procedures. It will indicate outdated methodology and pinpoint the need for change through a list of corrective steps coded in the evaluation report."

For many years the CAP has been the leader in proficiency testing programs and now has the largest continuous survey programs in the world.

Further information on the 1969 Office Laboratory Proficiency Evaluation Program may be obtained from the CAP, 230 N. Michigan Avenue, Chicago 60601.

Clinical Cardiology

(Continued from page 395)

Effective management of shock requires not only initiation of the correct therapy in the correct amounts, but also close continuous monitoring of cardiovascular function. Adrenergic drugs should be weaned and discontinued as soon as possible. Blood volume may be inadequate after cardiac function is improved, and a falling CVP may be an indication for administration of dextran, even in patients who have manifested heart failure only a few hours before. If rhythm disturbances persist electrical pacing through a transvenous pacemaker may help improve peripheral blood flow.

It is clear that intelligent use of the means currently available can be effective in salvaging many patients who would otherwise succumb to cardiogenic shock. In others, however, the impairment in cardiac performance is so severe that medical therapy is ineffective. In this selected group of patients mechanical means of temporary circulatory support may eventually become an important adjunct to management.

The handicapped worker has not only shown himself to be a good and competent employee; he frequently brings something extra in the way of motivation. He tries harder because he wants to show what he can do. As a result, employment of the handicapped is no longer regarded as an act of compassion; it is a matter of good business judgment. . . . Thomas J. Watson, Jr., Chairman of the Board, IBM Corp.

Nineteenth Annual Meeting

Kansas Academy of General Practice

STATLER HILTON INN

OCTOBER 12-14, 1969

SALINA

SUNDAY, OCTOBER 12

- 5:30 p.m. Cocktail Hour, Statler Hilton Inn
6:30 p.m. Buffet, for physicians, wives, guests
7:30 p.m. Business Meeting—Kenneth L. Lohmeyer, M.D., President,
presiding

MONDAY, OCTOBER 13

- Registration Upper Lobby, Statler Hilton Inn
7:15 a.m. Past Presidents' Breakfast, for all physicians, wives, guests
8:30 a.m. Business Meeting—Kenneth Lohmeyer, M.D., presiding

(There will be no scheduled luncheon)

- 1:00 p.m. Golfing, Salina Country Club
6:30 p.m. Cocktail Hour, Salina Country Club
7:30 p.m. Sportsman Banquet, Salina Country Club
Presentation of Golfing and Shooting trophies—Kenneth
D. Wedel, M.D., presiding
Banquet Speaker: Jerry Mays, Defensive End, Kansas City
Chiefs Football Team

TUESDAY, OCTOBER 14

- Registration Upper Lobby, Statler Hilton Inn
9:00-11:45 a.m. Morning Scientific Assembly, Statler Hilton Inn

(Each speaker will present two, 20 minute papers)

- Robert W. Weber, M.D., Salina:
"Antibiotic Complications"
"Iatrogenic Effects of Corticosteroids"
Victor H. Hildyard, M.D., Denver:
"Diagnosis and Treatment of Recurrent Serous Otitis
Media in Children"
"Diagnosis and Treatment of Common Ear Problems"
Frederic Speer, M.D., Shawnee Mission:
"Food Allergy in General Practice"
"Contact Dermatitis in General Practice"

- 12:15 p.m. Luncheon, Statler Hilton Inn
Jack Tiller, M.D., Wichita, presiding
Speaker: George A. Wolf, Jr., M.D., Dean and Provost,
University of Kansas School of Medicine

- 2:00-5:00 p.m. Round Table Discussions
(Speakers from morning sessions will rotate from room to
room for 40 minutes with each group, after which a final
panel will be held.)

Moderators: J. W. Jacks, M.D., Pratt; E. J. Cheney,
M.D., Belleville; D. D. Goering, M.D., Salina

- 6:30 p.m. Cocktail Hour, Salina Country Club
7:30 p.m. Annual Dinner, Salina Country Club
Installation of Officers
Dinner Speaker: Judge Philip B. Gilliam, Juvenile Court,
Denver, Colorado

KaMPAC Workshop

Oct. 12, 1969

Ramada Inn, Topeka

"LET'S SIZZLE IN THE SEVENTIES"

Morning Session

8:30 LATE REGISTRATION—COFFEE AND SWEET ROLLS

9:30 WELCOME

Norton L. Francis, M.D.—Chairman
KaMPAC Board of Directors

WORKING COOPERATIVELY

Leland L. Speer, M.D.—President
Kansas Medical Society

10:00 AMPAC—YOUR PARTNER

Hoyt Gardner, M.D.
AMPAC Board of Directors

10:30 TEAMWORK COUNTS—A.M.A. PUBLIC AFFAIRS DIVISION

Irvin E. Hendryson, M.D.—Board of Trustees
American Medical Association

11:00 DOCTORS MEET THE CONGRESSMEN

Panel Moderator:

Oliver E. Ebel—Executive Director
Kansas Medical Society

Panelists:

Representative Garner Shriver—Kansas
Representative John Marsh—Virginia
Representative Chester L. Mize—Kansas
M. Robert Knapp, M.D.—Wichita
Richard Schneider, M.D.—Kansas City
Theodore E. Young, M.D.—Topeka

12:30 LUNCHEON—SENATOR ROBERT W. PACKWOOD, OREGON

Afternoon Session

2:00 CAMPAIGN MANAGEMENT TACTICS

Panel Moderator:

William L. Watson, Executive Director
AMPAC

Panelists:

Roy Pfautch, President
Civic Services, Inc.—St. Louis, Missouri
Matt Reese, President
Matt Reese and Associates—Washington, D. C.
Henry Parkinson, President
Parkinson-Setter and Associates—Wichita
Bob Gadberry, Vice President
Fourth National Bank—Wichita

3:30 A LOOK TO THE FUTURE

Senator Bob Dole—Kansas

4:00 ADJOURNMENT

Four Reasons to Attend KaMPAC'S Workshop

October 12, 1969

MATT REESE—

A professional politician in the best sense of the term. He knows what makes the voter tick and how to reach them for a candidate or a cause. Many say the election and margin of victory of Governor Docking over former Governor Avery can be credited to Mr. Reese and his organizational masterminding. This man has much to say to those who will listen.

ROY PFAUTCH—

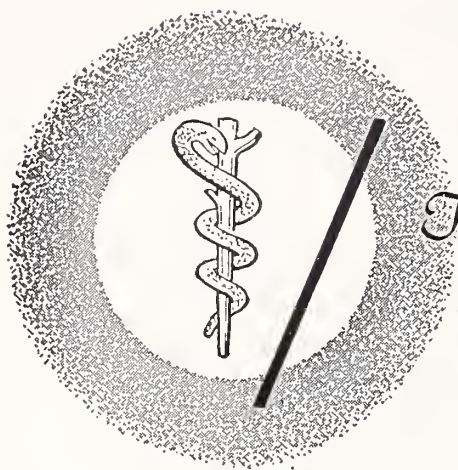
A professional campaign manager at both the congressional district and statewide levels. Consultant to Senator Dole's successful 1968 campaign. Also has served for AMPAC, Life Underwriters' PAC, and the Republican National Committee. Frequent speaker at business and professional groups.

HENRY PARKINSON—President of the largest public relations firm in Kansas. Over past six years the firm has coordinated 76 political campaigns—ranging from U. S. Senator to Sedgwick County Commissioner. Lobbying efforts brought about the upcoming referendum on liquor-by-the-drink. Retained last year by *Wichita Eagle-Beacon* to sample political attitude and on October 8, 1968, correctly predicted the outcome of the races for Governor and Lieutenant-Governor.

BOB GADBERRY—

Vice President and National Representative of the Marketing Division, Fourth National Bank and Trust Company, Wichita. Active in civic and community affairs, annually addressing a number of school, church and convention meetings over the United States. State chairman for Dole for Senator campaign in 1968 and serves on the board of PACK (Political Action Council of Kansas).

*Political knowledge
was taboo at college,
But 'tis not too late to take a whack
and learn with KaMPAC!*



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

THE HIGH COST OF BEING SICK AND THE USES OF ASPIRIN

When President Nixon says the nation is facing a "massive crisis" in health care because of costs and the shortage of professionals and facilities, we assume the professionals, directors of facilities and others in the health field will pay heed. It hardly is as if a radical advocate of socialized medicine were beating the drums for a government take-over.

Medicare, which assists retired persons under an expanded Social Security act, and Medicaid, the federal-state program designed to help welfare recipients and the near-needy, are costing too much. Total medical, drug and hospital expenses in general are rising at an alarming rate. And yet there is an increasing public demand for more and better health services.

It might be more accurate to say that a "massive crisis" in health care has been around for a long time. What has changed is the public awareness of the crisis and a parallel public expectancy that strong efforts will be made to resolve it.

The report, submitted to the President by the Department of Health, Education and Welfare, lists some dismaying developments and prospects. Physicians' fees have been rising at a rate of 6 per cent a year since 1965. The cost of a single day in a hospital has risen from \$44 in 1965 to \$70 today, and could go to \$100 within three years. The cost of Medicaid to the states and federal government could rise from 2.5 billion dollars a year to 12 billion by 1975.

Thus it is now proposed that public health policies and payments be reviewed. Allowances for "unidentified costs" would be eliminated from hospital and nursing home charges. Regulations limiting payments

under Medicaid would be enforced. The usage, pricing and efficacy of drugs would be reviewed.

The administration will ask for legislation that would bar from practice physicians who "consistently have abused the Medicare and Medicaid programs" and withhold payment from facilities that have incurred expenses contrary to public health plans. It would use government hospital aid for the development of more facilities for preventive and out-patient care and it would encourage various prepayment plans. It will ask health insurance to step up coverage for the type of preventive services that can keep people out of hospitals.

All of which is good thinking and directly to the point of short-run costs and problems. But it ought to be recalled that nothing in Medicare or Medicaid increases the supply of doctors, nurses, medical technicians, nursing homes or the other personnel and facilities that are necessary. The fact is, the expanding blueprint of what ought to be done in health only exposes the shortages that exist in personnel and facilities. To a degree, the big expenditures in Medicare and Medicaid are occurring because a great many people are getting attention they never had before.

Some doctors are charging excessive fees and no doubt some hospital directors are inefficient. But the men and women of the total health profession ought not to be made public scapegoats for conditions that are nationwide and the results of many factors.

The high cost of medical care is a distressing national headache, but like a headache, it is a symptom of a more basic ailment. It is, in reality, the measure of shortages and inadequacies that have existed for years. New rules and regulations to reduce costs can work as aspirin, but they won't cure the patient.—*Kansas City Star*, July 14, 1969.

Medicine and Religion Symposium

University of Kansas Medical Center

TUESDAY, OCTOBER 21, 1969

8:00 a.m. Registration

8:50 a.m. Welcome—Jesse D. Rising, M.D.

THE SANCTITY OF LIFE

Frederick F. Holmes, M.D., Presiding

9:00 a.m. Historical and Philosophical Perspective—Robert P. Hudson, M.D., William P. Williamson Memorial Lecture

9:30 a.m. Life and Death and the Church Tradition—Father Edwin Faltiesek

10:00 a.m. Liberal Theological View of Life and Death—Professor Joseph Fletcher

10:30 a.m. Recess for coffee and conversation

11:00 a.m. Life, Death and the Law—William A. Kelly, LL.B.

11:30 a.m. Life, Death and Medicine—John Arnold

12:00 noon PANEL: Who Defines Life and Death?—Moderator: Dr. Holmes

1:00 p.m. Luncheon recess

Chaplain George Munding, Presiding

2:00 p.m. The Ethics of Transplantation—Rabbi Robert Katz

2:30 p.m. Transplantation and the Law—William A. Kelly, LL.B.

3:00 p.m. Transplants: Present Capabilities—Darrell D. Fanestil, M.D.

3:30 p.m. Recess

4:00 p.m. Transplants: Future Prospects—William A. Reed, M.D.

4:30 p.m. PANEL: How to Balance the Social Need to Preserve the Sanctity of Life Against the Medical Needs of Society and Individuals—Moderator: Chaplain Munding

WEDNESDAY, OCTOBER 22, 1969

THE QUESTION OF PRIVATE MORALITY

William E. Larsen, M.D., Presiding

9:00 a.m. Historical and Philosophical Perspective of Morality—Robert P. Hudson, M.D.

9:30 a.m. The Pill: Pro and Con—Father Edwin Faltiesek

10:00 a.m. The Pill: Medical Aspects—Wayne L. Rockwell, M.D.

10:30 a.m. Recess for coffee and conversation

11:00 a.m. Can Medical Morality Be Private—Rabbi Robert Katz

11:30 a.m. Abortion: Medical and Medicolegal Aspects—Rosemary Schrepfer, M.D.

12:00 noon Abortion: Theological and Ethical Aspects—Professor Joseph Fletcher

12:30 p.m. PANEL FOR QUESTIONS—Moderator: Dr. Hudson

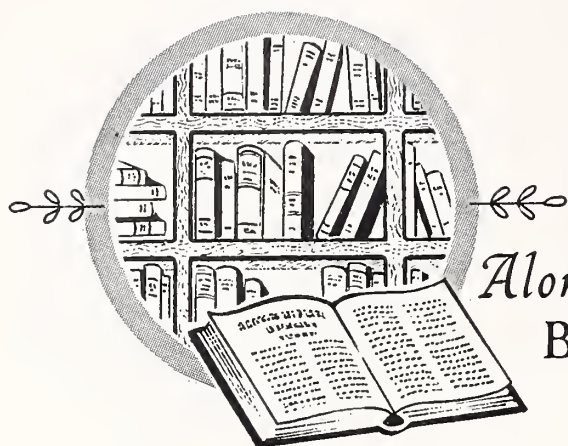
1:00 p.m. Luncheon recess

Reverend Jerry L. Spencer, Presiding

2:00 p.m. PANEL: Situation Ethics and Medical Morality—Moderator: Reverend Spencer

3:00 p.m. Recess

3:15 p.m. Small Group Discussion (12 Groups)



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Bierman, Howard Richard. Selective arterial catheterization; diagnostic, therapeutic and investigative. Springfield, Ill., Thomas, 1969.
- Borden, George A. Speech behavior and human interaction. Englewood Cliffs, N. J., Prentice-Hall, 1969.
- Brown, Harold W. Basic clinical parasitology. 3d ed. New York, Appleton-Century-Crofts, 1969.
- Burch, Philip Robert James. An inquiry concerning growth, disease and ageing. Edinburgh, Oliver & Boyd, 1968.
- Duhl, Leonard J. Mental health and urban social policy; a casebook of community actions. San Francisco, Jossey-Bass, 1968.
- Furnas, David W. A bedside outline for the treatment of burns. Springfield, Ill., Thomas, 1969.
- Gellis, Sydney S. Atlas of mental retardation syndromes; visual diagnosis of facies and physical findings. Washington, D. C., U. S. Govt. Print. Office, 1968.
- A Handbook for research in general practice. 2d ed. Edinburgh, Livingstone, 1969.
- Healey, John E. A synopsis of clinical anatomy. Philadelphia, Saunders, 1969.
- International Symposium on Biocybernetics of the Central Nervous System. Washington, D. C., 1967. Boston, Little, Brown and Company, 1969.
- Klein, Donald F. Diagnosis and drug treatment of psychiatric disorders. Baltimore, Williams & Wilkins, 1969.
- McGregor, R. M. The work of a family doctor. Edinburgh, 1969.
- Macy Conference on Teaching Family Planning, Bellagio, Italy, 1967. Teaching family planning; report of an International Macy Conference. New York, Josiah Macy, Jr. Foundation, 1969.
- Meldman, Monte J. Occupational therapy manual. Springfield, Ill., Thomas, 1969.
- Miller, Dulcy B. The extended care facility; a guide to organization and operation. New York, Blakiston Div., McGraw-Hill, 1969.
- Morgan, William L. The clinical approach to the patient. Philadelphia, Saunders, 1969.
- Pollak, Otto, editor. Family dynamics and female sexual delinquency. Palo Alto, Science and Behavior Books, Inc., 1969.
- Sharpe, John Charles, editor. Manager of medical emergencies. 2d ed. New York, Blakiston Division, McGraw-Hill, 1969.
- Smallpeice, Victoria. Urinary tract infection in childhood and its relevance to disease in adult life. St. Louis, Mosby, 1968.
- Spotnitz, Hyman. How to be happy though pregnant; a guide to understanding and solving the normal emotional problems of pregnancy and postpartum blues. New York, Coward-McCann, 1969.
- Swinyard, Chester A., editor. Limb development and deformity: problems of evaluation and rehabilitation, by 53 contributors. Springfield, Ill., Published for the Association for the Aid of Crippled Children by Thomas, 1969.
- Symposium on the Spine, Cleveland, 1967. Symposium on the spine. St. Louis, Mosby, 1969.
- Symposium on Vitamins in the Elderly, London, 1968. Vitamins in the elderly; report of the proceedings. Bristol, Wright, 1968.
- Tarnopol, Lester, editor. Learning disabilities; introduction to educational and medical management. Springfield, Ill., Thomas, 1969.
- Taymor, Melvin L. The management of infertility. Springfield, Ill., Thomas, 1969.
- Toole, James F., editor. Special techniques for neurologic diagnosis. Philadelphia, F. S. Davis, 1969.



Book REVIEWS

CARE OF THE GERIATRIC PATIENT (3rd edition), E. V. Cowdry, Editor. C. V. Mosby Company, St. Louis, 1968. 430 pages. \$15.75.

The present edition of this respected book on geriatric care represents an extensive revision and reorganization of the previous edition. It now consists of 28 chapters on aspects of geriatric care written by specialists in each category, viz, the Community, Psychologic, Spiritual, and Medical Aspects, etc. This edition updates the information assembled in the first five chapters of the previous edition. Fourteen new chapters are added on the medical specialties, namely, cardiovascular, exercise, genetic aspects, psychiatric aspects, etc. Specific information is easier to find by this chapter reorganization and adds greatly to its usefulness as a ready reference.

The book is written in readily understandable language with technical terms kept at a minimum and little of the "jargon" that specialists are wont to employ. It can thus be commended to anyone interested in the field of geriatrics, whether in the professional disciplines or in ancillary fields. It is well worth the announced price, which is within the usual range of professional books.—*D.V.P.*

PULMONARY EMPHYSEMA AND RELATED LUNG DISEASES by Theodore Rodman and Francis H. Sterling. C. V. Mosby Company, St. Louis, 1969. 468 pages illustrated. \$27.50.

This 468-page book presents a comprehensive review, including the latest concepts of pulmonary emphysema. Scholarly approach describes aspects from etiology and pathogenesis to treatment of the disease including a clear description of anatomical and pathological processes at work. This reference book is worth the review by anyone interested in patients with chronic pulmonary disease.—*R.M.B.*

ELECTROPHORESIS AND IMMUNOELECTROPHORESIS by Leo P. Cawley. Little, Brown and Company, Boston, 1969. 384 pages illustrated. \$15.00.

Electrophoresis and immunoelectrophoresis are the subject of numerous publications, but usually too specialized for most physicians and laboratory workers; therefore, a textbook such as Cawley's *Electrophoresis and Immunoelectrophoresis* was urgently needed. In this book the author presents his own experience in this field, along with the most significant contributions made in this new field of laboratory medicine.

This book consists of 15 chapters and an appendix. The first chapter deals with the principles of electrophoresis and immunoelectrophoresis; the second chapter, with the structure, physiologic role and catabolism of the immunoglobulins, as well as the concepts of monoclonal, dysclonal, and polyclonal gammopathies. There are chapters dealing with electrophoresis of urine and spinal fluid; also, several chapters on enzymes. The chapter on lactic dehydrogenase-isoenzymes describes the most common pathologic patterns of serum LDH, LDH in red cells, leukocytes, and LDH in organic fluids. Alkaline phosphatase, amylase and creatine phosphokinase are similarly well treated. The chapter on lipoproteins correlates the lipoprotein profiles in the prediction of metabolic diseases. Hemoglobin and its variants, in this book, are dealt with very well. Two novel chapters on red cells are likewise included, one referring to the stromal proteins (other than hemoglobin), among which the author has characterized 28 different fractions; the other chapter, to the promising new approach of electrophoretic separation of red cells. The final chapter, comprising about one third of the book, is dedicated to methods in electrophoresis and immunoelectrophoresis; among them, the use of agar-gel as supporting media, and the use of polaroid-photog-

(Continued on page 410)

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Disease Prevention and Control—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in June, 1969 and 1968

Diseases	June		5-Year Median 1965-1969	January-June Inclusive		5-Year Median 1965-1969
	1969	1968		1969	1968	
Amebiasis	—	1	1	1	5	4
Aseptic meningitis	3	—	—	6	—	—
Brucellosis	—	—	—	1	2	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	1	1	3	5	3
Encephalitis, post-infect.	—	1	—	—	6	1
Gonorrhea	401	283	283	2,316	1,878	1,878
Hepatitis, infectious	14	60	19	147	205	147
Measles (Rubeola)	—	—	*	4	8	*
Meningococcal meningitis	—	2	2	13	16	13
Mumps	—	14	*	91	702	*
Pertussis	—	—	—	—	—	3
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	1	—	2	2	2
Rubella (German Measles)	5	5	*	37	113	*
Salmonellosis	11	25	17	78	98	95
Scarlet fever	1	1	2	23	26	52
Shigellosis	7	2	7	37	29	34
Streptococcal infections	25	29	102	1,575	1,539	1,575
Syphilis	203	115	127	979	547	576
Tinea capitis	5	2	1	25	29	26
Tuberculosis	18	24	24	106	118	119
Tularemia	—	—	—	3	1	2
Typhoid fever	—	—	—	—	1	1

* Statistics not available for 5-year median.

HUMAN SPOROTRICHOSIS ACQUIRED
THROUGH CONTACT WITH
INFECTED CAT

Two human infections of *Sporotrichum schenckii* investigated by the Ohio Department of Health last winter appear to have been acquired through contact with an infected cat. The cat developed a lesion around November 7 at the site of an apparent bite on its right front foot. This may have been a rat bite, as many rats were seen near the premises. The owner, a young lady, attempted to treat it with peroxide; however, the infection spread and a veterinarian was consulted on November 16, 1968. *S. schenckii* was cultured from the cat's lesion. In spite of treatment, the infection progressed to extensive involvement of the cervical area, hock region, and trunk; euthanasia was performed.

The owner developed a lesion on her right wrist just before Christmas and was first seen by a physician on December 27, 1968. The veterinarian also developed a lesion on his right wrist 29 days after first examining the cat. While inoculation of the

fungus into the skin is thought necessary for infection, neither the owner nor the veterinarian could remember any specific bite or scratch from the cat or any apparant trauma at the lesion sites. Both patients had lymphatic involvement and responded very slowly to oral potassium iodide. The lesions disappeared after more than two months of treatment. These two human infections were confirmed by culture.

Sporotrichosis is a disease caused by one of the extensive group of mycotic pathogens which are commonly found in soil or in the general environment. These diseases include histoplasmosis, cryptococcosis, blastomycosis, geotrichosis and some of the common ringworm infections. Most of these are not communicable and the environmental reservoir represents a common source of infection for both man and animal.

Sporotrichum schenckii may, however, be acquired through contact with lesion material as well as with the organism found in nature. It is worldwide

(Continued on page 410)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

OCTOBER

- Oct. 6 International symposium on early disease detection, Hotel Elkhart, Elkhart, Indiana. Registration forms can be obtained from the Disease Detection Information Bureau, 3553 W. Peterson Avenue, Chicago 60645.
- Oct. 6-10 American College of Surgeons, San Francisco.
- Oct. 12 KaMPAC Workshop, Ramada Inn, Topeka.
- Oct. 12-14 Annual Scientific Assembly, Kansas Academy of General Practice, Statler Hilton Inn, Salina.
- Oct. 14-22 11th Congress of the Pan-Pacific Surgical Association, Honolulu, Hawaii.
- Oct. 22-24 16th Western Cardiac Conference, University of Colorado Medical Center, Denver. For further information write: Colorado Heart Association, 1375 Delaware Street, Denver 80204.
- Oct. 23-25 Annual Fall Clinical Conference, Kansas City Southwest Clinical Society, Hotel Muehlebach, Kansas City, Missouri. For registration forms, write Kansas City Southwest Clinical Society, 3036 Gillham Road, Kansas City, Missouri 64108.
- Oct. 27-29 Annual Fall Conference, The Oklahoma City Clinical Society, Oklahoma University Medical Center. Write: The Oklahoma City Clinical Society, 2809 Northwest Expressway, Oklahoma City, 73112.

NOVEMBER

- Nov. 13-16 1969 Scientific Sessions, American Heart Association, Memorial Auditorium, Dallas, Texas.

POSTGRADUATE EDUCATION

University of Kansas:

- Oct. 2-3 *School Health: School, Sex and Society (Revisited)*
- Oct. 21-22 *Medicine and Religion*
- Nov. 3-6 *Internal Medicine*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

- Sept. 29-Oct. 3 *Hospital Medical Staff Conference* (Estes Park)
- Oct. 6-10 *High Risk Infant Care* (limited)
- Oct. 27 *Oral Cancer Seminar*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Denver Children's Hospital:

- Oct. 24 *Intensive Care*
- Nov. 14 *Pediatric Cardiology*

For further information regarding the above continuing education courses contact L. Joseph Butterfield, M.D., Department of Continuing Education, Children's Hospital, 1056 E. 19th Ave., Denver.

University of Nebraska:

- Oct. 17-18 *BRYAN DAYS—Selected Problems of the GI Tract* (Bryan Memorial Hospital, Lincoln)
- Oct. 31-Nov. 1 *Obstetric Pediatric Conference* (Lincoln General Hospital, Lincoln)

For further information write: Department of Postgraduate Education, University of Nebraska Medical Center, 42nd and Dewey Avenue, Omaha 68105.

University of Iowa:

- Sept. 19-20 *Great Plains Regional Heart Meeting*
 Oct. 3-4 *Urology*
 Oct. 17-18 *General Practitioner's In-House Refresher*

For further information write Director of Postgraduate Education, University of Iowa College of Medicine, 100 Westlawn, Iowa City 52240.

- Oct. 4-10 *Annual Otolaryngologic Assembly*, Illinois Eye and Ear Infirmary, Medical Assembly, Chicago. The Dept. of Otolaryngology of the College of Medicine, University of Illinois, offers a condensed postgraduate basic and clinical program for practicing otolaryngologists, designed to bring to specialists current information in medical and surgical otorhinolaryngology. Write for information: Otolaryngology, P.O. Box 6998, Chicago 60680.
- Oct. 15-17 *Advances in the Diagnosis and Treatment of Cancer*, presented by Harvard Medical School at Massachusetts General Hospital, Boston. For application form, write Assistant Dean, Dept. of Continuing Education, Harvard Medical School, 25 Shattuck Street, Boston 02115.

The annual course in Postgraduate Gastroenterology, sponsored by the American College of Gastroenterology, will be held at the Rice Hotel, Houston, Texas. The program will include:

- Oct. 23 *Symposia on the Esophagus and on Cancer of the Stomach*
 Oct. 24 *Symposia on the Liver and on Malabsorption Syndrome*
 Oct. 25 *Gastrointestinal Problems in Space Medicine*

For further information write the American College of Gastroenterology, 299 Broadway, New York, N. Y. 10007.

The Council of Postgraduate Medical Education, American College of Chest Physicians announces the following continuing education courses:

- Oct. 16-18 *Intensive Management of Pulmonary Disease* (sponsored by American College of Chest Physicians and University of Manitoba, Winnipeg, Canada).
 Oct. 29-Nov. 2 *Fall Scientific Assembly* (35th annual meeting), Chicago.

For further information contact: American College of Chest Physicians, 112 E. Chestnut Street, Chicago 60611.

- Nov. 11-14 *Clinical Electrophysiology of Neuromuscular Diseases*, Dept. of Rehabilitation

Medicine, New York University Medical Center. For information write Joseph Goodgold, M.D., Institute of Rehabilitation Medicine, RR221, 400 E. 34th Street, New York, N. Y.

- Nov. 12-15 *Today's Hospital Problems: An Interdisciplinary Approach*. Sponsored by the Mound Park Hospital Foundation and the University of Florida's J. Hillis Miller Health Center. To be held at The Tides Hotel and Bath Club, Redington Beach, Florida. For information write to Postgraduate Medical Education, Mound Park Hospital Foundation, 701 —6th Street South, St. Petersburg, Florida 33701.

- Nov. 17-21 *Correlative Neuroradiology*. New York University Post-Graduate Medical School. For application write: Office of the Recorder, New York University Post-Graduate Medical School, 550 First Avenue, New York, N. Y. 10016.

- Dec. 8-13 The Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, announces an intensive program covering selected fields in cardiovascular diseases. Program oriented toward practical application of diagnostic techniques, basic understanding of pathophysiology of heart disease and medical and surgical management of the most common problems in cardiology. Informal workshop type sessions planned for evenings. Course intended for those interested in an extensive and detailed discussion of current aspects of cardiovascular diagnoses and therapy. Advanced registration required. Write: American College of Cardiology, 9650 Rockville Pike, Bethesda, Maryland 20014.

U. S. Savings Bonds and Freedom Shares are "indestructible." Every Bond and Share is registered in the name of the owner, microfilm copies of that registration are kept on file, and any Bond or Share lost, stolen, mutilated, or destroyed will be replaced by the Treasury.



KENNETH E. BICKFORD, M.D.

Dr. Kenneth E. Bickford, 40, of Oberlin, died on July 22, 1969, at the University of Kansas Medical Center in Kansas City.

Dr. Bickford was born December 4, 1928, at Velonia, Arkansas. He received his doctor of medicine degree from the University of Kansas School of Medicine in 1955. After practicing in Atwood for three years, he moved to Oberlin in 1962.

Survivors include his wife and four children.

JOHN A. GRIMSHAW, M.D.

Dr. John Grimshaw died at his home in Topeka on July 29, 1969. He was 55 years old.

Born September 18, 1914, in New York City, he was graduated from Cornell University Medical College in 1940. He was also a graduate of the Menninger School of Psychiatry and had been in private practice in Topeka for the past 18 years.

Surviving Dr. Grimshaw are his wife and six children.

Memorial contributions may be made to the Cornell Medical Research Fund, Cornell Hospital, New York City.

LEO J. SWANN, M.D.

Dr. Leo J. Swann, Leavenworth, died on July 16, 1969, at the age of 87.

Dr. Swann was born April 21, 1882, at Basehor, Kansas. He attended the Emporia State Normal College and taught school for several years before receiving his degree in medicine from the University Medical College of Kansas City in 1908. He had been a practicing physician in Leavenworth for 61 years.

Three sons survive Dr. Swann.

J. ERNEST THOMPSON, M.D.

Dr. J. E. Thompson, 75, Huron, died in the Atchison Hospital on June 30, 1969, from injuries suffered in an automobile accident.

Dr. Thompson was born February 7, 1897, at Nelson, Missouri. He was graduated from the Kansas City College of Medicine and Surgery in 1916 and had practiced medicine in Huron for 53 years.

He is survived by his wife.

Book Reviews

(Continued from page 405)

raphy for quick reporting both of which are outstanding contributions. The appendix includes information on stains, solutions, sources of reagents and equipment, and finally there is a section about electronic calculation of protein values with a desk computer. The text is well illustrated with diagrams and dark-field photographs of electrophoretic and immunoelectrophoretic strips. A detailed and up-to-date bibliography is given at the end of each chapter.

The great versatility of electrophoresis and immunoelectrophoresis, as applied to clinical diagnosis and biologic research, is very enlightening. The text contains guidelines for the diagnosis of multiple myeloma, macroglobulinemia, liver disease, myocardial infarction, etc., these having been established from the examination of thousands of electrophoretograms during the last ten years. On the other hand, the technical section of the book is sufficiently complete to serve as a standard reference for the interested laboratory worker. In addition to the practical conclusions, the step-by-step laboratory techniques, the book gives frequent notations on comparative biochemistry, philogenetic discussions, and the potential of these methods in the future of clinical pathology. This textbook is highly recommended to pathologists, internists, allergists, medical technologists, as well as to scientists in other fields who are directly or indirectly interested in the field of immunology. —A.H.

Morbidity Incidence Report

(Continued from page 406)

in distribution and has been found on plants, lumber, soil, dust, and animal lesions. Since inoculation into the skin or through traumatic lesions usually is necessary, a history of gardening or handling thorny plants and shrubs commonly is associated with human cases.

A number of animal species are susceptible including dogs, cats, horses, and rats. The pathogenesis typically involves papule development of the site of inoculation, progressing into nodular lesions and then into pustular or ulcerated areas. As the nodules grow in size, the lymphatics draining the area become thickened and cord-like. Multiple subcutaneous nodules and abscesses may develop along the length of the enlarged "pipestem" lymphatics. While systemic involvement is not common, the possibility of widely disseminated lesions with visceral or skele-

tal involvement always exists. The incubation period ranges from three weeks to three months.

While the disease is usually self-limiting, it also tends to be chronic and the potential threat of dissemination or transmission to others makes treatment of localized lesions mandatory. The recommended treatment for localized lesions consists of potassium iodide administered orally at high levels for as long as eight to ten weeks. Amphotericin B is the only recognized treatment for systemic infections.—*Veterinary Section, Bureau of Epidemiology, Illinois Dept. of Health.*

NEW FILM ON FAMILY PLANNING

Contraceptive methods are reviewed for hospitalized postpartum women in a film now available through the Planned Parenthood Federation, Inc. The film, titled "Happy Family Planning," was produced under a financial grant from Wyeth Laboratories.

"Happy Family Planning" is an entertaining 8-minute animated color film with music, available in either 16-mm. or 8-mm. The film, which presents its story in graphic devices and requires no dialogue, features various contraceptive devices which are identified in five languages: English, French, Spanish, Arabic and Chinese.

The film is designed for showing to lay groups, especially hospitalized women in the immediate postpartum period. It also can serve as a valuable educational aid in clinics, physicians' offices and at health meetings. The film is very useful where there is a language barrier, at all educational levels.

Prints of "Happy Family Planning" can be purchased at cost through Planned Parenthood Federation, 515 Madison Avenue, New York, New York 10022.

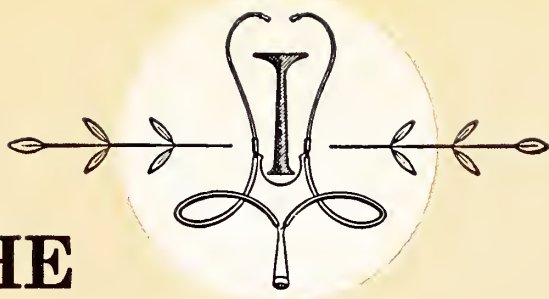
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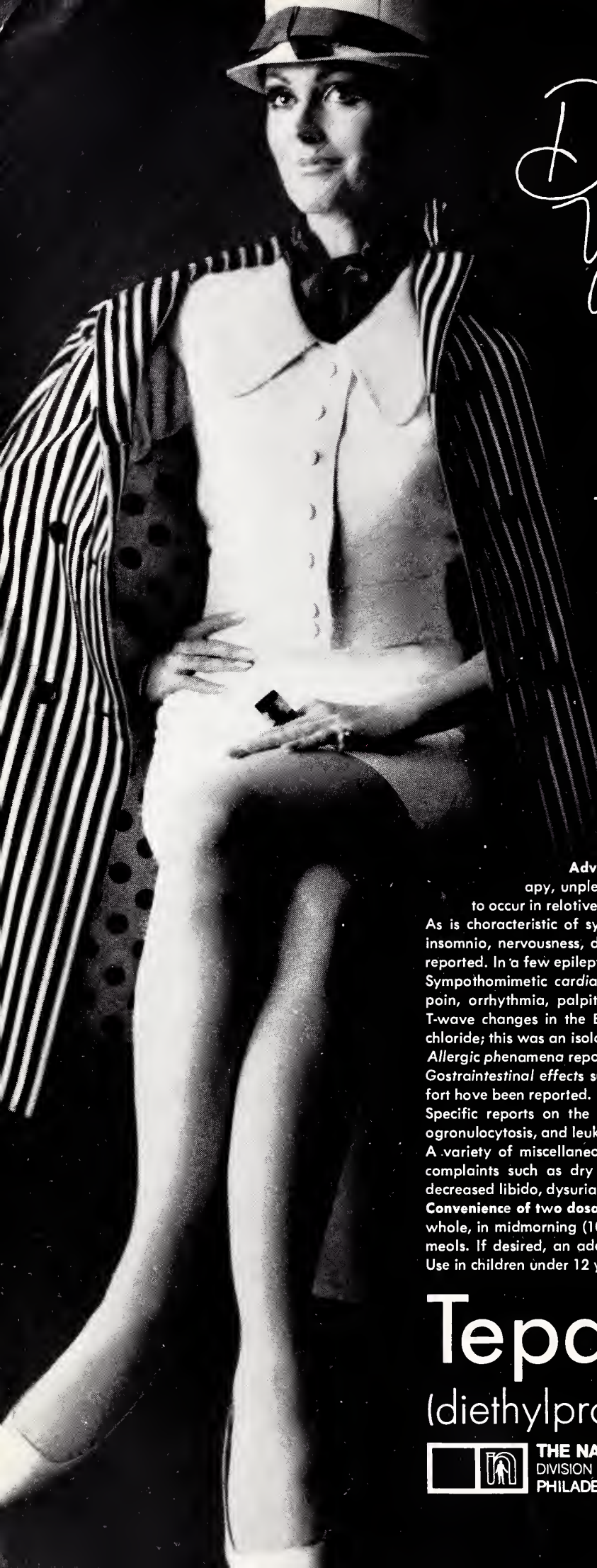
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Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported.

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The JOURNAL of the KANSAS MEDICAL SOCIETY

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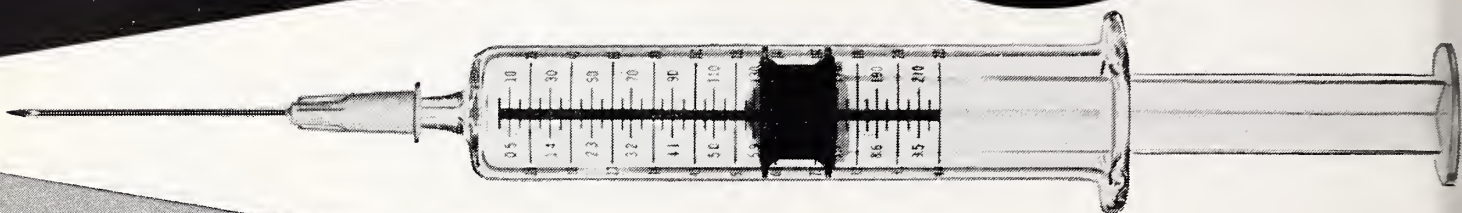
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The Physician's Assistant

One Approach to the Medical Manpower Problem

D. ROBERT HOWARD, M.D.,* *Durham, North Carolina*

I WOULD LIKE TO TELL you about the physician's assistant concept as one approach to the medical manpower problem. The concept goes beyond our program at Duke University, to be sure, but our program is one application of the concept at any rate.

Usually, when we talk about solutions we should think about the needs, and certainly there are many needs in the medical manpower area in this country today. These have been pointed out so often, however, that they are beginning to lose their impact even though they are statistically astronomical. Nationally, we find the problems that face us to include the distribution of physicians, the size and number of medical schools, and the types of manpower needed (be it the professional physician, the professional intermediate level personnel, or the technician). In the future we are going to see these needs become even more staggering—the general practitioner has all but faded from the picture and the general internist is now fading out of the picture. In essence, the people who are able to provide the first-line community health care are decreasing in relationship to the size of the population.

The problem of urbanization of trained personnel is becoming increasingly significant. We find that people who are trained, even though they might come from a small town, tend not to go back to these small towns. They tend to stay in the large urban centers as they prefer the economical and social advantages they feel are there.

Currently we are faced with another major change in the health industry and this is the change in emphasis from purely medical care to health care. We also see another change in that more and more people are in a financial position to afford medical care, be it through the federal government, through their own insurance, or through their own economic capability. We find too that there is going to be an increasing change in the future due to the rapid development and evolution of diagnostic and therapeutic equipment and procedures. These are frequently time consuming and require many extra, well trained hands. Every one of you who is in practice is aware of the needs that exist.

There are several problems, but I'm going to limit myself to one—the physician manpower problem. This can be solved in part by increasing the number and size of the medical schools that are available around the country today. This can be aided by developing some system for redistribution of physician manpower, which would require the spreading of the advantages of the urban setting into the rural

* Program Director, Physician's Assistant Program, Duke University Medical Center, Durham, North Carolina.

Presented at the annual meeting of the Kansas Medical Society, Statler Hilton Inn, Salina, May 6, 1969.

areas. Certainly the rural areas are economically more satisfying to the physician than are the centralized urban situations, but this is not enough to stimulate the physician to go into the rural areas. Another problem is that the health industry has lagged far behind other industries in the utilization of automation and computers. Many efforts are being made around the country to improve this status, but we are still far behind and will continue to lag for a long time to come.

Perhaps the most feasible means of increasing the physician manpower capability is by increasing his efficiency through a more effective utilization of paramedical personnel. The number and utilization of these people must be increased if we are going to reasonably expect that physicians' services to be extended and augmented.

Basically there are two types of paramedical assistants—one is the independent type such as the Colorado Pediatric Nurse Practitioner, the Kentucky Frontier Nurse and the Assistant Medical Officers in Africa and other emerging nations. The other is the dependent type such as we heard about a few minutes ago, and such as are being trained in the Physician's Assistant Program at Duke University and in similar programs at other institutions. We at Duke feel that the dependent type of person, the individual who works under the direct supervision of a physician, will in the long run be the better of the two types of paramedical assistants.

As far as the Duke program, it developed as a result of our local needs which are not unlike those you have in Kansas. In 1962 Dr. Eugene A. Stead, Jr., who was then chairman of the department of medicine at Duke, developed an outstanding postgraduate education program for physicians. When this got underway he was horrified at the poor turnout by physicians. Rather than sitting back and giving up, he tried to analyze the problem. In talking with physicians, he found they were so overworked that they were unable to get away from their practices. The few hours they had for their own pleasures were much more desirably spent in recreational activities or with their families. Dr. Stead was aware that around the medical center highly trained non-physicians were effectively utilized in the accomplishment of tasks previously done by physicians. He thought perhaps the solution to the problems that faced the community-based physician might be in providing him with an intermediate level professional assistant. In looking into this idea, he felt it was first necessary to evaluate the potential manpower resources. First, he realized that most of the special education efforts had been directed towards the nurse, because she had extensive medical knowledge and was the type of individual who could be upgraded. Nurses were becoming a scarce commodity, and he felt that the

utilization of females was largely undesirable because he was looking for more career-oriented people. Women tend to get married, have children, and for these and other reasons may drop out of their profession for several years. They may go back later, but further retraining is frequently required. Dr. Stead felt that it would be unwise to take people directly out of high school because they lacked the maturity to assume the responsibilities that would be required. Further, he viewed manpower sources in light of their socioeconomic background. It was felt that many people who had a desire to be in the health profession never had an opportunity to stay in this field because health education was either on a very limited level (a person going through informal training to be an orderly or patient care technician), or they had to go on through college. There were few financially stable, intermediate level positions open for men in the health care industry. The only exceptions to this being the male practical nurse or the male registered nurse, and this area has not proven itself as a large scale, feasible solution. Dr. Stead also thought it would be nice if he could get people who had some previous experience. Capitalizing on a previous experience aspect could help to reduce the attrition rate of people who might be trained to provide these skills and functions to the physician. He felt there was a desirable potential manpower resource in the ex-military corpsmen. Admittedly, the numbers are somewhat up from the normal because of the Viet Nam conflict, but currently over 20,000 of the more than 60,000 men discharged from the medical corps each year have over 3 years' training and a desire to stay in the health industry. This is a significant number of people and certainly cannot be ignored. Most of these people leave the health industry, in spite of their interest, to go into other fields that are more economically rewarding. Dr. Stead felt that utilization of this manpower resource could effectively aid in attaining the objective to train intermediate level professional dependent assistants similar in background and yet diversified in their skill capabilities.

This concept has been reinforced by many recent surveys. A survey in the April 1969 issue of the *Hospital Physician* tells how medical school faculty members rank various possibilities as a solution to the doctor shortage. The replies of 344 teaching physicians reflected that over 50 per cent indicated the best solution was in the broader use of paramedical personnel. This idea received the greatest support. Expansion of size of present medical schools was the next highest with 38 per cent; followed by building more medical schools, 35 per cent; better distribution of physicians, 17 per cent; and so on down the line.

The purpose of our program is really to provide all types of physicians with a means of augmenting services and increasing the quality of patient care. The original intent of the program was directed towards providing the first-line community physicians with such assistants. As we look into the background of our program, this is not really a new concept—all physicians have assistants who work in their offices. They have trained them to take over certain functions in order to make their day smoother and easier. The idea at Duke was to expand this concept and provide the physician with a well trained, dependable individual who could perform the services that did not require the extensive medical background of the physician. In 1965, under Dr. Stead's direction, the first four students were taken into the program; three completed the course. The program was expanded in 1966, and when Dr. Stead retired as department chairman in 1967 the program was transferred to the Department of Community Health Sciences under the chairmanship of Dr. E. Harvey Estes, Jr. In 1968, we further increased the size of the program, expanded the scope of the clinical training, and have come a long way in the educational development.

Currently our admission requirements are that applicants be at least high school graduates. Because of the number of applicants that we have, the people that we accept have an average of two years of college level academic work in their background. We further require that they have at least one year of patient care contact at some level or another. This is in an effort to reduce the attrition rate of the people we train. Applicants must take the Scholastic Aptitude Test and the Math Achievement Test—Level I of the College Entrance Examination Boards. We have found that we can pretty well determine their capability of learning on the basis of these test scores. We also give them the Minnesota Multiphasic Personality Inventory in an effort to screen out those who are undesirable because of personality traits. Beyond this, we require that the people be interviewed before they are accepted into the program.

Last year we sent out over 5,000 applications, and ended up with over 300 well qualified applicants to fill the 30 anticipated positions. Already this year, since April 1, over a thousand application requests have come in. The number of people interested in this type of work is nothing short of fantastic. We take people from varied backgrounds. Currently in the program we have a male nurse, a female practical nurse, a male practical nurse and a psychologist, but the majority of students are still from the corpsmen group.

Once in the program, we provide the student with a 24-month curriculum. This is divided into a nine-

month didactic portion, and a 15-month clinical portion. In the didactic portion, we have three phases—a six-week introductory phase in which they get courses in medical terminology; history, philosophy and ethics of medicine; inorganic chemistry review; basic laboratory procedures; and an introduction to animal experimentation.

In the main-core phase, which is 24 weeks, we teach by a systemic approach pharmacology, anatomy and physiology, clinical medicine, biochemistry and metabolism, and physical evaluation. Also during this phase, there are three, eight-week laboratory sections through which the students rotate. One section concerns patient diagnostic procedures where the students learn to do intubations, catheterizations, lumbar punctures, arterial punctures, and things of this nature. One section concerns clinical chemistry in which the emphasis is on doing clinical chemistries of the type that can be done in the physician's office or in a small clinic. This is not meant to remove utilization of the laboratory away from the physician's office, but rather to supplement those services. The third section concerns animal surgery where the students are taught tracheotomies, wound care, and things of this nature.

In the supplemental phase of six weeks, they are given those courses that don't fit into either the systemic approach to learning or into the introductory phase. In this phase the students are given courses in the basic principles of data processing, community health, radiology, interpretation of electrocardiography, medical instrumentation, and physical diagnosis.

In the second year we allow the students to diversify. As pointed out originally, the primary goal was to provide the general practitioner and general internist with an assistant. However, we have had to expand the scope because of the pressure from other physicians who have participated in the teaching and have seen how well these people function. The surgeons said, "We need somebody," so we expanded into surgery; the pediatricians said, "We need assistants too," so we expanded into pediatrics. Now it has come to the point that the cardiologists, the neurologists, the nephrologists, the rheumatologists and all the other specialists are wanting assistants and it has become our duty to train people in these areas as well. We have found we can train assistants in every area simultaneously because they don't get in each other's way and the clinical capability is not appreciably affected as far as turning out people for general medicine to work with physicians providing first-line community care. During this time we structure their clinical training program in such a way that regardless of what area the students are going into they will have served eight weeks as

a required rotation with an appropriate outpatient service, eight weeks with an appropriate inpatient service, and finish their 15-month clinical training with eight weeks away from the medical center with a physician who is in a community practice.

The students also take a required four-week administrative rotation during which they are introduced to the functions of the insurance companies and the state and voluntary health agencies. In addition to the required rotations, they are allowed to take some elective rotations. There are clinical rotations available in virtually every clinical setting in Duke Hospital and we are now using other local hospitals in order to enlarge our clinical training potential.

At the end of the 15 months the students become certified as a physician's assistant graduate of our program. Though we by no means intend this to be the end of their training, they are at least able to provide the physician with a good background and are prepared to help him in his endeavors.

In our program we have given extensive thought to the potential problems and what sort of projects we have to implement to solve these problems. The greatest problem has been in the size limitation of the program, which has been primarily due to funding. The need for expanding the program seems to be justified by the tremendous number of job offers to the graduates from all over the country. Unfortunately, the requests for these people, like the requests for physicians, go mostly unfilled because of the limited number of graduates that are available. It is our goal to increase the size of the classes and also help other institutions that are interested in developing this type of program. This is where the major effect is going to be—not from the number of people that are trained at Duke, but the number of people that are able to be trained at other institutions around the country.

Another problem is the need of the specialties and not only the need to provide the first-line community general practitioner and general internist with an assistant. In response to this, the program has expanded into virtually all specialty and subspecialty areas. This year expansion into the areas of radiology, psychiatry, obstetrics and gynecology, and some medical and surgical subspecialties, including neurosurgery, has been undertaken. This is accomplished by decreasing the scope of the training in the clinical year and increasing the depth of learning within this limited scope. It is not expected that the physician's assistant will be able to make diagnoses or prescribe management for patients, but they can learn to do just about anything else. The diagnostic and prescriptive functions obviously belong to the physicians. These functions belong to them now and

should always stay with them. To be sure, there is limited diagnoses that everybody makes. Before a patient gets to a doctor, it is because the remedy prescribed by himself, his neighbor, his neighbor's friend who is a nurse's aide, his relative who was a nurse, the pharmacist, and the secretary in your office have all failed. Even though utilization of a physician's assistant might be incorporating another individual in this chain of events, the major diagnostic decision-making should be a function of the physician. This is the physician's job and it is this that requires his background gained in college, medical school, internship, residency and experience.

One of the problems that has occurred in developing the program has been to provide other institutions that are looking at this concept a system of program evaluation. So far, the evaluations undertaken have been done by the school of business administration.

The first evaluation that was completed and recently published in *Group Practice* was the sociological role evaluation of the graduates. This was considered the basic evaluation in order to determine whether these individuals were happy with their own roles, to find out what their functional role was, and to find out how they related with other people who participated in the health team. Among the conclusions reached was that the roles of the graduates were as varied as the roles of physicians for whom they worked and they undertook whatever role the physician-employer felt would be the greatest aid to him. Some of them were found to spend most of their time in direct patient contact and delivery of health services; others spent very little time in that area and a great deal of their service in administrative functions, while others participated extensively in research.

From this basic evaluation the necessity of three other evaluations became evident. One, a patient acceptance analysis, has recently been completed. Another, a cost benefit analysis has been partially completed and it is anticipated that this will be ready for publication early this summer. And the third, a comparative health team study, is well underway. Regarding the patient acceptance analysis, it was pleasing to note that there were virtually no patients who exhibited a negative attitude by the incorporation of the physician's assistant into the health team. The acceptance ranged from neutral up to a very enthusiastic response by the patients. There were two factors in this analysis that were statistically significant. Number one, that the very poor and the very wealthy were the least accepting of this concept. The very poor because they felt they were having second class medical care forced on them, and the very wealthy because they figured they could

afford whatever care they wanted and they wanted only the physician. The large majority of the people in the middle income brackets, however, were very enthusiastic in their acceptance of the physician's assistant. It seemed that this group enjoyed the increase in the efficiency created by the physician's assistant between the time they arrived at the doctor's office and the time they left. They enjoyed having an individual with whom they could discuss many minor things that they were previously reluctant to discuss because of the physician time involved. Also, the patients felt that they could better communicate with this intermediate level professional. The other statistically significant factor in acceptance was level of education—the more educated, the more accepting of the physician's assistant. Age, sex, disease, and other criteria were of no significant influence regarding patient acceptance. The cost benefit analysis has revealed that the cost per year for training these people is about two-thirds the rate of a medical student; that is, about \$8,000 a year against \$12,000 a year for medical students. Of course, their training is only two years as compared to the five to ten years it takes to train a physician and consequently the cost is significantly below the cost of training physicians. As far as the benefit aspects are concerned, the only criteria gathered to date are estimates from the physicians who utilize the physician's assistants. These physicians estimate that they have been able to increase their patient output anywhere from 30 to 100 per cent by the utilization of one of these assistants.

In the comparative health team study, one of the clinics utilizing the physician's assistants in the coastal region of North Carolina is being compared with another clinic that is similar in type and number of physicians, the type of population served, and size of practice, but does not have a physician's assistant. Preliminary results from this evaluation are not yet available.

Another problem that needs to be resolved is the legal status of the physician's assistant. Currently they are operating under an interpretation of the North Carolina Medical and Nursing Practice Act that was made by the attorney general in 1966. He said in effect that there was nothing that could be construed in the laws to prohibit any individual working under the direct supervision of a physician from carrying out tasks involved in the care of patients. Because this in itself was not felt to be entirely satisfactory, a conference was held at Duke last March to determine the means by which a system could be developed that would legally allow the incorporation not only of the physician's assistant but other types of newly developed and trained manpower into the health care industry. The meeting was

comprised of representatives from the nursing, medical and legal professions, organized medicine, hospital administration and the community at large. It was the consensus of this group that the best way to do this would be to introduce new levels of care into the health care industry in a way similar to the manner in which new drugs are introduced. This would consist of having the institution that is training new levels of manpower work under the supervision of a committee that represents the interests of these people. In October, 1968, a second conference on the physician's assistant concept, of which the legal status was one of the major topics, was held at Duke. At this conference, attended by people from all over the country, this idea was presented and there was almost universal acceptance. Currently we are engaged in an extensive project to evaluate all existing medical manpower legislation with the objective of developing model legislation that will allow the incorporation of new types of manpower into the health care industry. In this project we will be using Edward Forgotson, M.D., LL.B., from the University of California and the Rand Corporation, who was instrumental in the function of the President's Commission on Medical Manpower; Carl Wasmuth, M.D., LL.B., from the Cleveland Clinic and currently president of the American Society of Anesthesiologists; and Mr. Nathan Hershey, LL.B., research professor of health law at Pittsburgh University. These three people, in conjunction with a lawyer from our department, will be used as consultants and will develop model legislation to be approved by the American Bar Association and available for adoption by the states.

Another problem that must be faced is in attaining academic recognition for the student's time in training because in the future just to certify graduates will very much limit their career mobility both upward and lateral. Recently the program at Duke has received official university approval and our students are now given academic credit for their work during the two-year training program. Currently these credits are not applicable toward a degree at Duke University because no appropriate degree is yet available. It is anticipated that this will change within the next year and a half to two years. In the meantime the academic recognition is aided by the fact that other educational institutions offering a baccalaureate degree in the health sciences are accepting these credits toward a degree. The concept of the training in this program lends itself very well to a new educational concept—that of a reversible curriculum. In this situation the student could take two years of general academic degree prerequisites first and then enter the professional portion of the

training program and at the end of the four years he would receive both a certificate and a degree. If, on the other hand, he chooses to vary this course somewhat the student could take the professional portion of the training program and become certified as a physician's assistant and then support himself through the basic academic work and obtain his degree at a later time. This system would allow for a great deal of flexibility because it is realized that not all physician's assistants will need a degree to function adequately in their professional role.

Another problem that needs to be resolved is that of professional development for the physician's assistant. In 1968 a professional organization, the American Association of Physician's Assistants, was incorporated. The objectives of this organization are to provide continuing education for the graduates, participate in the future development of the program and work closely with organized medicine so that the desires of physicians can always be met. In order to meet these objectives the association is currently developing a liaison association with the North Carolina State Medical Society so that the medical society can provide input into the training program and maintain control by close affiliation with the physician's assistants through their professional organization. This is regarded as essential because of the fact that it is the physician who ultimately assumes the financial and legal responsibility for the physician's assistant.

As a whole, the Physician's Assistant Program has been a highly interesting and gratifying activity for those of us involved in it over the past few years. It is felt that certain, strong, positive results have ac-

rued from the activities of Duke University Medical Center in this program.

1. A model has been developed which provides a practical, attainable means of augmenting the output of the individual physician in community practice.
2. A source of manpower has been developed for the internal needs of the medical center in patient care, especially the highly skilled technical positions in special care areas.
3. A means of slowing the upward spiral of medical costs, at least in the physician payment area, has been demonstrated.
4. Interchange and joint research between the medical school and social sciences divisions of the university has been catalyzed.
5. The medical student and the house officers have learned that delegation is possible, and that a team approach can be more than an academic exercise.
6. A pathway has been provided for entry of some students who have not had the advantage of an educationally directed childhood into their preferred career of medical care.

The need to provide well-trained people for the health care industry in the future is self-evident. Programs similar to the one that has been developed at Duke University can go a long way toward fulfilling the needs, both present and projected. The development of such a program is faced with many problems and the need for a great deal of hard work, but the real service to patients and to the medical profession easily make this a worthwhile venture.

GALLEY PROOF CORRECTIONS

There is sometimes a misunderstanding about changes in an article on the galley proofs and the reluctance of the JOURNAL to make extensive alterations. The reason for this is quite simple and easily understood when one knows all the facts. The article has already been set in type. To make extensive changes requires that the typesetting be done over, at an additional cost which may even exceed the original, because it is slower work to fit pieces together than to set an entire article in type. It is also obvious, when one stops to think about it, that an alteration in the first few lines of a paragraph will probably make it necessary to reset the entire paragraph. This, of course, increases greatly the cost of printing and should be avoided as much as possible. The galley proof is for correction of *errors*, and a rewriting of the article should be done on the original copy before it is submitted for publication.

The Future of Medical Care

How Will It Be Affected by the Public's Demands and Reactions?

WHITLEY AUSTIN,* *Salina*

THE SUBJECT ASSIGNED to me is "The Future of Medical Care; How It Will Be Affected by the Public's Demands and Reactions."

To do justice to such a topic I would need to be oracle and prophet, if not priest and king. I would need a carload of chicken gizzards to examine and a crate of crystal balls. I would have to move Delphi from Greece to Kansas. Yet the sad truth is I have not yet been able to figure out a Blue Cross/Shield statement; the meaning of those bills is as clouded to me as is medicine's future.

And I am well aware that my attempt to answer must be more complex than your prescription of aspirin, bed rest and plenty of liquids. Certainly it must be more complex than my own prescription of Scotch and water.

Nevertheless, I shall try the impossible, cheered by the American Medical Association's new emphasis on the positive, its enlightened and modern approach that medicine is for the people and not the profession, and by the dedication I have found in the dozens of physicians whom I count as my friends.

If my remarks seem frank it is because they otherwise would lack point. If they seem uninformed it is because so relatively little medical information filters through to the public I have been asked to represent. And if my remedies are unacceptable, please remember that within ten years many of your own present prescriptions and procedures will be in the same class with the leech of antiquity and the asafetida bag of my grandmother. Tempus fugit and, thank God, so does your profession.

It seems to me that from the public point of view, we in Kansas have two separate and distinct kinds of general medical care problems.

The problem of care in the cities is quite different from the problem of care in the rural reaches. In the country and the small town, the problem is to get any medical care at all. In the city, the problem is the worrisome one of choice. And of course there are others, such as the waiting room syndrome. It

results when the doctor refuses to make appointments so that his waiting room fills up and his patients can exchange their common colds.

But if their problems are somewhat separate, both the city man and the country man have one desire in common. That is to have confidence in the physician that treats them. As you well know, faith is often as important as pills. In these days, only a few of us are fortunate to build that close patient-physician relationship on which such confidence usually rests.

We Kansans have become a people on the move. This complicates particularly the problem of the city man. He has left the old homestead where grandfather broke the sod and planted the cottonwoods. He constantly is changing jobs and towns. He rarely can establish a family relationship with a physician. When he is in need of one, he may look up a name in the phone book, take the recommendation of a friend at the next desk, or, more likely, go to the outpatient clinic or emergency room of the nearest hospital.

The country man's problem is complicated because doctors are on the move. The farmer needing treatment often has no choice except to consult the "doctor book" or travel scores of miles to see a doctor in the flesh.

And when either the country man or the city man do reach an honest-to-God physician, they want more than a factory line diagnostician. They want a man who will listen to their troubles, who will meet the psychic need that sickness so often creates and that healing so often demands.

In this respect, there is much talk these days about the need for more general practitioners. I think the term is misunderstood by the public as meaning a saw-bones of all trades. But I am told the American Academy of General Practice is trying to change this image. It is seeking to identify its residency program as being a Family Practice residency, and its members wish to be known as the family physician. This is all to the good.

It is my guess, however, that most patients do not care what a doctor calls himself. Among my 97 employees, for example, I know one that goes for any

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medical treatment to a general surgeon, another to an internist, another to a pediatrician, another to a gynecologist, and so on. I have not found one, however, that goes to a psychiatrist for flu shots. They tend to go for general treatment, if he will have them, to the doctor who first treated them well.

I think further that those of us who as laymen are somewhat versed about medicine do have a family doctor if we can, but we do not expect him to treat all of our medical problems. We expect and want him to refer us to specialists when specialists are indicated. We may call him about a sore throat but we want him to refer us to a surgeon for an appendectomy or to an orthopedist for a broken leg. We appreciate that the knowledge of medicine has so increased that no one man can master it all. We want the specialist system and we want the family physician; these wants are not inconsistent.

If this attitude increases, the demand for the general practitioner in the old sense would seem to be limited to the emergency room and to the isolated community served by one or two doctors, if any. I gather this issue is largely academic, because the number of physicians who attempt full scale general practice rapidly is decreasing. After all, who but a specialist would scrape the innards of an aging female and fill the void with pills?

This education of the public in the need for specialists has an important application to rural medicine of the future. Kansas does suffer from a shortage of medical care in the countryside, particularly in Western Kansas. There have been several solutions attempted.

One was Franklin Murphy's plan to encourage young graduates to enter rural practice. A variation of this is in the idea, usually advocated in the state legislature, that if our medical school only turned out more doctors, the hamlets would get more of them. The success of such plans has been limited.

Another is the Chamber of Commerce approach. A small town will build a small hospital and advertise for a doctor to be supported through community subsidy. But the hospital often proves to be inadequate in both facilities and staff and the doctor doesn't come. Or if he does, he doesn't stay. Rather than an economic asset, the little one-man hospital becomes a liability. A number of Kansas towns have discovered this to their sorrow and loss.

The facts of life are that today's physicians prefer—and require—some form of group practice, even if of only two physicians. This is the trend. Strange as it may seem, it may be easier for the smaller community to secure two physicians than one. The back fence consultation remains essential.

The group may be a formally organized clinic. It may be by association, as staff members of a hospital,

or, more loosely yet, as a society in which one doctor may confer with another, compare notes, seek advice, find a substitute on a day when the fish are biting.

Furthermore, these physicians require within a reasonable distance of them a modern hospital well equipped and well staffed with technologists, nurses and aides. This is not a new but classical need, dating back to when Pergamum was in flower and Asclepias, the healer, built a sanitarium that still may be seen in Turkey. I once visited the ruins and marveled at the remains of the therapeutic baths, the laboratories for compounding drugs, and the provisions for piping soothing music as part of the psychiatric treatment.

Now, Kansas may not be able to afford rural temples with built-in choirs for country patients. But there are alternate solutions. One, advanced by a former dean of the K.U. medical school, would make use of highly trained nurses operating under the direction of one or more physicians. This is an adaptation of the theory and practice of public nursing but with an emphasis on private direction. A well-trained nurse—trained well enough to know when the situation is beyond his or her capabilities—could provide much of the routine medical care required by a small town. She would have a direct relationship with a physician—I mean a professional relationship—even though he might live in a town some miles away. It could be possible for a doctor or group of doctors to direct a number of these field nurses. Modern telephones, modern highways and the new electronic hookups make this approach seem more practical than ever.

Building on this idea, I envision four-level system of medical services in Kansas that would have special advantages for the sparsely settled areas.

At the bottom level, in the small towns, immediate care would be provided by these superior nurses, probably working from an office-home. This would not be ideal, but it would meet a need now neglected.

These nurses would be in constant contact with physicians practicing in the larger towns, and who had available some laboratory facilities—perhaps practicing in conjunction with a skilled nursing home. I mention this because I know you will agree with me that many convalescent patients, the bed-ridden and the aged, should be as close to their own homes as possible. Such homes certainly should have beds for emergency use.

These groups of town doctors would, in turn, have direct, professional relationship with physicians at regional centers, the third level of my plan. The regional centers would have fully equipped hospitals, laboratories and skilled nursing homes, and on the staffs would be physicians with most of the usual

board specialties. The regional centers, of which Salina might be an example, would be the mainstay of the system, their services reaching down through the group or town clinic to the village nurses: a planned, coordinated system.

The fourth and final level of the plan would include a broad range of specialists and facilities such as are now found at Kansas City and Wichita, interlocked with the state institutions and research centers.

We almost have such a system now but it is loosely joined. Indeed it creaks at the joints. In some towns we still have two or more hospitals that duplicate facilities unnecessarily or fail to cooperate well. We need still closer professional relationship between the doctors in the cities and those in the regional centers, and with those in the town groups. There should be transportation arrangements, understanding about costs, a uniform billing practice and, in general, a close working arrangement. It should be noted that medicare and insurance programs rapidly are bringing about uniform billing.

In the larger towns, at the regional centers, I would lock into the system outpatient clinics for the benefit not only of the transient but also of the newcomer and of the family without a medical relationship. This perhaps would answer some of the problems of our increasingly mobile population.

Now all of this would require direction, organization and money. Some of the money inevitably would need to come from federal government, although not along the lines the Nixon people have proposed as a replacement for Hill-Burton aid. Short of a miracle of private financing, ours must be an aided program.

But wouldn't this be socialized medicine? On socialized medicine, so called, I am of two minds.

When I was in Uppsala, Sweden, several years ago, I asked the dean of the medical college what the doctors thought of the highly socialized Swedish system. He told me that for the most part the Swedish doctors liked it. He said: "We are free to practice medicine without the worries of office keeping and bill collecting. We can concentrate on healing the sick."

In Britain, the national health scheme has improved the health and care of the English people. Standards have improved enormously. More people get better care. But there are objections and complaints, of course, and the British system is confoundingly costly to the rate-payers. My British friends tell me they like some aspects of it, although the well-to-do admit they still seek and pay for private care in the event of serious illness. Even so, they would not go back to the old ways.

As for Kansans, I do not think most of us are really worried whether medicine is socialized or not. We fear the word more than the fact. Many Kansans already use something akin to socialized medicine. They now expect the company for which they work to provide them medical and hospital insurance through Blue Cross and Blue Shield or commercial plans. They expect company-paid inoculations. In big plants, they expect the services of company doctors and nurses. Military dependents are familiar with, and mostly like, military medical services. Of course those relatively few persons with an established relationship with a family physician or group practice will continue to want freedom of choice in their doctor and hospital. Most schemes permit this. So would the one I have suggested for Kansas.

And, after all, Kansas medicine already is somewhat socialized. Physicians are educated in tax-supported institutions. The hospitals they use are federally subsidized. Much research in medicine and pharmacy is subsidized. Examinations and standards are set by public bodies. Strictly private medicine is as much a thing of the past as proprietary medical schools.

Nevertheless, I entertain serious doubts about socialized or—rather—bureaucratic medicine. I am far from impressed with the constantly changing rules of the bureaus, the busy paper work, the time-wasting procedures, the arbitrariness I have seen in the administration of the health facilities act and in the federally sponsored health services planning councils. The feuding and empire building within the State Board of Health distresses me. I am upset about the reported conditions at the Larned State Hospital. Even such a splendid institution as the K.U. Medical Center is not operated as efficiently as it might be. The state underpays the menial and clerical help and then employs twice as many persons as actually needed. Parkinson's Law operates there and in many hospitals with a vengeance.

In most aspects of American life, we function through a mixed economy, partly private enterprise, partly government controlled and subsidized. I do not think this mix can be avoided or changed. I do not think we wish it to be.

But your profession can take positive, productive action. I am so bold as to suggest the members of your medical society take the lead as public spirited but private citizens in re-organizing Kansas medical and hospital services better to meet the common need. Take federal money if you must but run the show yourself and run it better.

In this connection, may I also suggest that your patients face another problem besides getting a doctor when needed and getting into a hospital when hospitalization is required. That problem is anticipat-

ing, figuring out and paying hospital and doctor bills. The present fee and charge system makes little sense. Hospital bills usually include not only room charges but a mystifying list of special services and drugs. Doctor bills are almost as incomprehensible, especially when several physicians are involved. Blue Cross and Blue Shield methods add to the confusion. The amount of paper work is excessive, costly and annoying to all concerned, as much for the doctor and the hospital as for the patient. Use of computers seems not to have improved the situation.

I suspect much of the trouble in the hospitals lies in poor systems of cost accounting, if any; in improper allocation of costs; and in cheap, inefficient help. Present practices waste business office hours and the time of nurses as well. Why spend two dollars worth of time to itemize every dose of aspirin?

With proper cost accounting and cost allocation, the hospitals could apply the art of statistical averaging. Flat charges for the facilities required for the various standard surgical procedures, and flat daily nursing and room charges, all based on the historical, average costs, would make a lot more sense to the patient. They would save the hospitals paper work and bother—and a lot of arguments as to whether Demerol was administered on Tuesday or Wednesday or to that other patient in the semi-private room.

As far as the patient is concerned, it would make more sense to him if he got one bill rather than several bills at distant intervals from the surgeon, the assisting physician, the anesthetist, the pathologist and the radiologist. Now I am not advocating fee-splitting. Heaven forbid! What I am suggesting is an improvement on the present medicare and Blue Shield billing methods. They are a start but not yet the answer.

Billing reforms would save money, stop arguments, end the patient's suspicion he is being rooked, and also produce another benefit. The patient could know in advance—usually, but not always—the probable total cost of a surgical procedure and hospitalization. Thus he could budget his affairs to make the payment you certainly deserve. There would be no sad surprises—or fewer of them. We perhaps are not quite ready for annual payments to our physicians to keep us well, but through the insurance plans and big factory practices we are close to it. As Kansas becomes industrialized, the company doctor may become commonplace.

Many of you may be repelled by the concepts of the company doctor, of pre-paid medicine or even of the insurance plans, your own Blue Shield included. But our society is being propelled into them by the high costs of medical and hospital care. We may now provide for the poor and for the aged, but the dollar impact upon the well-paid workman, the

moderately well-to-do businessman or middle executive of the cost of a major illness can approach the catastrophic—unless he is insured. The public wants the Blue Shield concept broadened, not narrowed. It has little patience with the Robin Hood concept that the well-to-do should be stuck with high doctor bills to compensate for the deadbeats. It has enough of that in the graduated income tax. It distrusts those who charge all the traffic will bear. The public sees fairness in a standard Blue Shield fee.

It is a phenomenon that while the individual physician may be liked, and often loved, the profession as a whole sometimes suffers from disrespect. Much of this disrespect, insofar as it does exist, comes, of course, from misunderstanding, misinformation, a lack of communication and intellectual appreciation. These factors your society is seeking to remedy. Part of this disrespect stems from anti-social positions taken in the past by a few medical leaders; and these I hope you now tend to repudiate.

And part of it is prompted by medical costs: the *rewards* of the practice of medicine seem *out of proportion* to the *services*. This may not be my viewpoint but it is a common public viewpoint. Justified or not, it is a compelling factor in the economic changes medicine in the United States is now undergoing and will undergo further.

Fortunately, many hospitals are now seeking to become more efficient and to that extent less costly. You doctors, as a society, have a means to curb the excesses of a greedy few. Most of you are adjusting to change as every educated man must if he is to survive. But despite your best, most conscientious efforts, first-rate medical treatment must continue to carry a high price tag. And the only way the average patient can meet the price is through some cooperative plan that spreads the risk and the cost, whether it is an insurance plan, a company program or a government assisted program—medicare, medicaid or what not. As realists you must face facts. I am sure you do.

I have not gone into medicare because, being six years from 65, I have not bothered my poor head about it. But you may be sure the scheme is here to stay and will be extended. I gather it has increased demand for hospital beds. And if the demand is warranted for proper care of the aged, that is all to the good. I also gather that medicare has not created quite all of the mean problems at first anticipated, although some rough spots remain. It also has had some side benefits. For example, utilization committees have become more customary and active since medicare, and this has tended to put hospital beds to maximum service. That is, the committees, when they

(Continued on page 428)



Student THESIS

Assessment of Fetal Distress—In Utero A Review

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Introduction

THE INTRAUTERINE fetal death is of most serious concern to the physician involved in any form of prenatal care. Many cases of fetal death first present as fetal distress which only the most astute physician is able to detect with the use of present day methods. If he is to deliver the maximum number of viable infants, the physician must be aware of what comprises fetal distress and its methods of detection and management; that is, in what conditions and at what gestational age would the infant have the greatest chance of surviving early delivery, living outside a pathologic maternal environment.

The incidence of fetal distress ranges from 1.5 to 22.8 per cent. Fenton and Steer reported in 7,795 cases an incidence of fetal distress of 10 per cent. Of the 776 cases, 5.4 per cent eventually died, this being double the control perinatal mortality. Cox described similar statistics. Other studies have correlated cerebral palsy, mental retardation, epilepsy, deafness, blindness, and behavioral disturbances with difficult labor, placental conditions, asphyxia neonatorum and prematurity in approximately 90 per cent of the cases studied. From these statistics, considerable cor-

relation can be made between fetal distress, fetal death and birth defects.

The purpose of this paper will be to establish which pregnancies make up the high risk group, what criteria make up fetal distress and the clinically useful and experimental evaluation techniques available in following high risk pregnancies.

High Risk Pregnancies

In order to diagnose and properly treat fetal distress the physician should be aware of those conditions associated with an increased incidence of fetal distress, i.e. high risk pregnancies. These pregnancies are best subdivided according to source as follows:

Systemic Conditions

A. Infant source

1. Prematurity
2. Congenital malformations

B. Maternal source

1. Postmaturity
2. Diabetes
3. Toxemia
4. Primary renal disease
5. Elderly primigravida
6. Maternal-fetal blood incompatibilities
7. Infections

Local conditions

- A. Placenta previa
- B. Abruptio placenta
- C. Prolapse of the cord

* This is one group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Jenson recently completed his internship at St. Luke's Hospital, Saginaw, Michigan.

The most significant number of high risk pregnancies are related to maternal-fetal blood incompatibilities and conditions characterized by abnormal placental function, the latter referring to the clinical syndrome, placental insufficiency. The main conditions in which one finds placental insufficiency are toxemia, hypertension, and occasionally in the pregnancy which is prolonged beyond the normal span of 42 weeks—the postmaturity pregnancy. Other conditions associated with placental insufficiency are diabetes, primary renal disease, first pregnancies in older women, and twin pregnancies beyond 38 weeks' gestation. Browne has written an excellent summary on this entity and believes the etiology to be due to an impairment of maternal circulation or of diminished placental permeability. The placenta may be normal or abnormal in appearance.

Clinical Criteria of Fetal Distress

Clinical diagnosis of fetal distress is based on the passage of meconium in the vertex presentation and fetal bradycardia usually of less than 100 beats per minute or a bradycardia which does not return to normal within 30 seconds from the end of uterine contraction. Hon and his group have found both criteria to be due not necessarily to hypoxia alone, but to vagotonia as a result of cord compression. Other minor criteria are a persistent tachycardia of greater than 160 beats per minute and the presence of cardiac irregularities.

There is disagreement as to the significance of the signs of fetal distress when present alone or together. Cox found bradycardia and the passage of meconium separately had a mortality rate of 5.4 per cent and 3.5 per cent respectively, while in combination a mortality rate of 35 per cent. Fisher, in relating bradycardia or meconium staining or both with the one-minute Apgar score found neither bradycardia nor meconium staining alone valid signs of fetal distress while the combination was ominous. His study revealed 4.1 per cent of the control group fell into the lower half of the one-minute Apgar scale while 7.97 per cent with meconium staining and 16.84 per cent with bradycardia alone fell in this range. When the combination was considered, 30.50 per cent had an Apgar score from 0 to 5.

Fenton and Steer concluded that occurring alone these tests indicate a sufficient degree of fetal distress to warrant interference and the combination was associated with a significant perinatal mortality of about 25 per cent. They also found fetal survival to be directly correlated with the time interval between discovery of fetal distress and delivery, the critical time being 30 minutes. Delivery should be performed by the most expedient method according to the station of the presenting part and the

cervical dilatation. The mortality was 11 per cent when distress lasted longer, and 0.5 per cent when delivery was accomplished within 15 minutes. Therefore, "The method of delivery is not as important as the speed with which delivery is carried out."

Komaromy, *et al.* using continuous fetal electrocardiographic tracings and fetal acid-base studies found that cardiac arrhythmias did not necessitate intervention in themselves. Howard found fetal tachycardia alone was not necessarily a sign of fetal distress but may be a result of active fetal movements, especially following rupture of the fetal membranes. Active fetal movements with fetal bradycardia indicates severe fetal distress.

In summary, it would appear that fetal bradycardia and the passage of meconium in a vertex presentation are true signs of fetal distress only when occurring together, but when occurring alone are indications of some departure from normal and may be the first sign of anoxia and therefore require continuous close follow-up.

Clinically Useful Techniques

With time and improved scientific techniques, our ability in assessing and judging fetal welfare has increased. The future looks even more promising. The clinically useful and research techniques used in evaluating fetal welfare at the present time will now be considered. Emphasis will be placed on the latter half of pregnancy.

HISTORY

A thorough history is very important in pinpointing previous reproductive failures relating to blood group incompatibilities, diabetes, toxemia, hypertension, renal disorders, twins or obstetrical accidents. Abruptio placentae tends to recur and the fetal prognosis in general is poorer in women with a previous history of reproductive failure.

PHYSICAL EXAMINATION

Fetal heart tones are normally heard first from 18 to 20 weeks gestation. Any alteration suggests questionable gestational age or fetal dysmaturity and distress. An unexplained weight loss of one or two pounds over ten days or so, a failure of growth of fundal height, or decreasing abdominal girth are all suggestive of placental insufficiency, fetal distress or death. Normal abdominal girth is about 36 inches at 36 weeks and 40 inches at 40 weeks although allowance should be made for obesity and polyhydramnios. Browne believes a steady decrease in abdominal girth for one week or so near term is an indication for delivery.

AMNIOTIC FLUID SPECTROPHOTOMETRY

No physician practicing obstetrics or pediatrics should ignore recent advances in this field. Several excellent articles have been written on the subject, most of which are based on the technique of Liley.

Abdominal amniocentesis is an outpatient procedure. About 5 cubic centimeters of amniotic fluid is withdrawn and analyzed spectrophotometrically. Gross yellow fluid is frequently associated with erythroblastosis and fetal anemia. The degree of erythroblastotic involvement and severity of fetal anemia is reflected in the size and progress of the characteristic 450 millicrons peak. The first tap is performed as indicated by initial screening, antibody titers, and previous obstetrical history. The frequency of repeated taps is in accordance with the 450 millicrons peak on previous taps. If the optical density reaches 0.25 or 0.30 appropriate action is necessary according to gestational age and clinical judgment. Planned induction is recommended approximately two weeks earlier than the maturity of the last stillbirth or delivery of a severely affected infant.

One should be cognizant of the rare hazards of amniocentesis such as the escape of fetal cells into the maternal circulation resulting in increased sensitization or the occasional rupture of fetal vessels with hemorrhage or exanguination. The fluid withdrawn may also present a source of error. Maternal urine, fetal ascitic fluid or amniotic fluid from multiple amniotic sacs may be withdrawn, or the presence of meconium may lead to the false diagnosis of severe hemolytic disease. The fluid may be contaminated with affected or unaffected fetal serum or even maternal serum, in which case two to three weeks should be allowed for decontamination. Duodenal atresia allows for the regurgitation of bile and thus erroneous results. Schulman, Mann and Hayashi have found the test loses much of its accuracy after 35 weeks and during the last month a single specimen gives only a qualitative determination and not a quantitative one.

URINARY ESTRIOL DETERMINATION

Another recent addition to the obstetric armamentarium is the maternal urinary estriol determination in the detection and management of chronic uteroplacental dysfunction, especially those associated with hypertension, pre-eclamptic toxemia, post-maturity and diabetes.

There are over 20 different forms of estrogen which may be identified in the urine during pregnancy. The estriol fraction is very weak physiologically but its predominance in the urine makes it the most practical to measure. It constitutes about 70 per

cent of total urinary estrogens excreted in the last trimester of pregnancy. This labile estrogen fraction is postulated to arise in the fetal adrenal and becomes metabolized and conjugated largely in sulfate form and is hydrolyzed by the fetus and transferred to the maternal side via the umbilical circulation and excreted in maternal urine. Both fetus and placenta must be functioning as a circulatory unit for estriol to be eliminated in normal amounts. The normal estriol levels increase gradually from 1 to 2 milligrams per 24 hours at 14 weeks to from 26 to 40 milligrams per 24 hours at or near term.

Although the determination has proven to be quite reliable, it is still not practical for widespread clinical use. The determination requires a 24-hour urine sample which must be processed by one of several methods. Acid or enzymatic hydrolysis requires an additional 12 to 24 hours. Recently Rourke and associates described an ethyl acetate extraction technique which is rapid, accurate and can process up to 30 determinations in eight hours. Final determinations are then made either by colorimetric methods or by gas-liquid chromatography, both of which require elaborate, expensive and impractical equipment for widespread use. Long initial standardization periods are necessary in each laboratory for accurate results.

Most investigators are in agreement as to follow-up and prognosis. Rourke and associates follow the recommendations of Behling in getting daily determinations after the thirty-fourth week in disturbances of placental function with suspected impending fetal death. They feel since daily variations are common, two consecutive falls in estrogen level implies progressive deterioration of fetal well-being. Carington and Urbach place emphasis on precipitous drops below 50 per cent of previous values as a warning signal.

Greene and Touchstone in 2,015 determinations found no normal pregnancy with levels below 7.0 milligrams per 24 hours and no fetus survived longer than two days when the level reached 4.0 milligrams per 24 hours. They concluded, along with others, that fetal prognosis is excellent when maternal estriol values of 12.0 milligrams per 24 hours and above are found within 24 hours of delivery. Values between 4.0 and 12.0 milligrams per 24 hours may indicate fetal jeopardy depending on the stage of gestation. Values less than 4.0 milligrams per 24 hours for two or three consecutive days could mean impending fetal death, fetal death during the previous 24 hours, toxemia, maternal sepsis or unexplained premature labor and delivery.

In evaluating estriol levels, one should consider the duration of pregnancy, maternal diuresis, impending premature labor, the impact of maternal

disease and finally fetal dysmaturity. Several studies have shown that pregnant women with acute urinary tract infection, chronic pyelonephritis or diabetic glomerulonephritis have reduced estriol values. Taylor and his group have shown that 10 per cent glucose added to pregnancy urine will decrease estriol values by 12 to 15 per cent when acid hydrolysis extraction is used and therefore, they question the reliability of estriol determinations in diabetic patients. Diuretics increase excretion, according to Yousem, Seitchik and Solomon. Frandsen and Stakeman recommend 24-hour creatinine determinations also, to be sure that the specimen contains all urine for that 24-hour period.

Estriol determination is limited to cases in which placental insufficiency is suspected and contributes little to those cases of Rh sensitization. In fact, Rh sensitization has shown an inconsistent excretion value above normal in several studies. The recent discovery of low amniotic fluid estriol in erythroblastosis may shed some light in the future and will be discussed later.

Research and Experimental Techniques

AMNIOTIC FLUID STUDIES

Several studies of amniotic fluid are presently being done on an experimental basis to assess fetal status in complicated pregnancies.

Saling has described the use of the illuminated cervical endoscope in performing amnioscopy. Amnioscopy can be performed on an outpatient basis during the last four to six weeks of complicated pregnancy and is of value in managing erythroblastosis or diagnosing premature rupture of the membranes, placental insufficiency, cord obstruction or fetal death. It is useful in grossly assessing and in getting an uncontaminated sample of amniotic fluid. The amniotic fluid is visualized against a light reflecting plane—usually the skin of the presenting fetal part or large flakes of vernix. Clear or opaque fluid, the latter caused by emulsification of vernix caseosum, are signs of normalcy while yellow or greenish discoloration from meconium, bile or oligohydramnios are considered premonitory signs of danger. In his series inadvertent rupture of the membranes occurred in 2.1 per cent and the induction of premature labor in only one per cent.

Goodlin has described the use of routine abdominal amniocentesis in suspected cases of jeopardized fetal health. By simple gross examination of 5 cubic centimeters of amniotic fluid he has found green meconium stained fluid in cases of fetal distress, as in toxemia, and dark or reddish-black fluid when the fetus is dead. The fluid is thick and yellow in the dysmaturity syndrome and usually absent in renal

agenesis. Yellow fluid is frequently found in cases of erythroblastosis with anemia. One must be aware of the false positives produced by maternal rather than fetal states as in maternal hyperbilirubinemia.

Elliot and Inman, assuming maternal blood as a source of amniotic fluid, have hypothesized a normal maternal blood supply to the placenta necessary for normal amniotic fluid volume. By using dye dilution techniques in normal and abnormal pregnancies they have found that amniotic fluid volume in healthy women reaches a maximum of about 1,000 cubic centimeters at 38 weeks and then decreases at about 145 cubic centimeters per week until 43 weeks at which time it is 250 cubic centimeters. They regard oligohydramnios as a sign of impending fetal dysfunction and in pre-eclampsia and essential hypertension have found the peak volume at 37 weeks to be 50 per cent of normal and the minimum volume to be reached earlier than 43 weeks. Goodlin was unable to correlate fetal age with fluid volume.

In recent studies Schindler, *et al.* found amniotic fluid estriol to be exceptionally low (less than 20 μg per liter) in five of ten severely affected Rh sensitized pregnancies. Normal values range from 185 to nearly 3,000 μg per liter. Since blood spillage following intrauterine transfusion does not interfere with estriol measurements as with spectral analysis, they recommend it as a further diagnostic step, not as a substitute for the Liley procedure, in obtaining additional information and evaluating fetal status following each transfusion in the sensitized Rh pregnancy.

FETAL ELECTROCARDIOGRAPHY

The first fetal electrocardiogram was recorded over 50 years ago. Considerable work in this area has recently been done by Hon and others.

During the antepartum period, indirect techniques of applying electrodes to the maternal abdominal wall are used primarily in the diagnosis of fetal life, fetal presentation and multiple pregnancies without x-ray exposure. They demonstrate an accuracy of 80 to 90 per cent, the main problem being signal-to-noise ratio.

Electrodes may be attached directly to the fetal scalp following rupture of the membranes with great improvement in the signal-to-noise ratio. Continuous recording serves to detect rate and wave form changes in acute or subacute fetal distress associated with diabetes mellitus, erythroblastosis fetalis and congenital heart disease. Larks and Larks found some fetal ECG changes in 44 per cent of intrauterine fetal difficulties.

Hon in 1960 described several distinct patterns associated with different fetal complications by

comparing fetal heart rates from continuous ECG tracings with uterine contractions. Fetal bradycardia normally persists for about 30 seconds following uterine contraction. V-shaped bradycardia is physiologic and is due to normal intracranial pressure during contraction. U-shaped bradycardia of early onset was found secondary to umbilical cord compression due to prolapse. U-shaped bradycardia beginning late in labor and toward the end of a contraction is of utmost diagnostic importance and is due to hypoxia and is associated with strong frequent contractions. Pre-eclamptic labor is associated with hypoxic U-shaped bradycardia; however, the contractions are not as frequent and are of shorter duration. Sustained bradycardia is related to continuous umbilical cord tension or stretch. Fetal bradycardia with irregularities are usually due to tetanic contractions from pitocin injection or maternal hypotension.

Three patterns of fetal tachycardia were also described. Transient tachycardia occurs in cases of pre-eclampsia and with cord complications. Sustained tachycardia may precede or follow hypoxic bradycardia or be secondary to maternal hyperthermia.

Lee and Hon, in comparing prenatal and neonatal ECG wave form changes, were unable to make any conclusive statement concerning QRS complex changes indicative of fetal distress.

Larks and Larks were able to show electrical axis-shifts in 22 per cent of cases of fetal distress. They found right axis shifts consistent with impaired oxygenation or increased pulmonic arterial pressure, in many cases of postmaturity, cord problems and pre-eclampsia.

As more refined techniques of electrode placing and continuous monitoring become available, the advantages of using the fetal electrocardiogram in monitoring acute fetal distress will increase.

OTHER URINARY HORMONE LEVELS

The use of urinary human chorionic gonadotropin levels are limited to early gestation between 57 and 110 days. HCG is a valuable clinical laboratory aid in the diagnosis, prognosis and management of threatened abortion, ectopic pregnancy, hydatidiform mole and choriocarcinoma, but it serves little prognostic value as an index of placental function.

Progesterone production as measured by urinary pregnanediol excretion rises throughout pregnancy, reaching a maximum in the third trimester. Urinary values are quite labile and great controversy exists concerning its value in assessing placental function.

FETAL BLOOD pH

Fetal distress results from decreased oxygen supply, increased CO_2 production and accumulation of

acid products of metabolism. Care, *et al.* in animal studies found capillary blood from a hyperemic area of the scalp closely approximates arterial pH, pCO_2 , and pO_2 , although the effects of severe caput formation were not simulated. Wood and his group and McDonald found a fair comparison exists between fetal blood pH and Apgar scores.

Recently Bretcher and Saling recommended microanalysis when the passage of meconium is found by amnioscopy after rupture of the membranes or following an alteration of the fetal heart rate with a fall below 120 per minute or above 150 per minute. They found fetal acid-base balance to be of great diagnostic significance during the second stage of labor. A pH of greater than 7.24 is normal and any value less than this is prepathological and must be repeated immediately. Any value of 7.19 or less is pathological and holds a high mortality rate, necessitating immediate intervention.

DIAGNOSTIC ULTRASOUND

The use of ultrasonic echo sounding in obstetrics is based on the use of high ultrasonic frequencies under directional control in producing a picture from the reflection of interfaces between tissues of two different properties. The procedure is done easily, without patient discomfort and without fetal exposure to x-rays.

Echoes may be either unidimensional or bidimensional. Unidimensional measurements are used in measuring the diameter of the fetal skull. Repeat measurements twice weekly furnish information concerning fetal growth. Taylor, *et al.* delivered infants weighing greater than 2,500 grams in 95 per cent of cases with a biparietal diameter equal to or greater than 8.5 centimeters and in 97 per cent of cases with a diameter equal to or greater than 9.0 centimeters. Their over-all diagnostic accuracy with regard to estimation of fetal weight greater than 2,500 grams was demonstrated to be 94.7 per cent following delivery.

Bidimensional echo sounding is useful in diagnosing twins and in determining presentation in doubtful cases. Its main use is in the gynecologic diagnosis of pelvic tumors and hydatidiform moles in early pregnancy.

RADIOACTIVE Na^{24} CLEARANCE

Radioactive sodium has been used in determining effective uterine mass circulation as an evaluation of fetal distress. Na^{24} may be injected directly into the uteroplacental bed, or it may be given intravenously and uterine pick-up determined. More recent studies have found direct injection into the anterior uterine wall muscle with evaluation of

clearance rates to be most useful. Clearance half-life of six minutes or longer had been considered abnormal. Diminished clearance rates result from inadequate development of or pathological changes within the placenta itself or from a reduction of the blood supply from the uterine wall. Landesman and Knapp found initial flat periods of clearance characteristic of severe toxemia and was associated with almost all cases which exhibited fetal distress. Correlation of clearance rates in mild toxemia and in the normal group were inconclusive.

MATERNAL ENZYMES

Several other valuable tests presented in recent literature for determining placental function include those for maternal serum oxytocinase, heat stable alkaline phosphatase, human placental lactogen and diamine oxidase (DAO).

Serum cystine amniopeptidase (oxytocinase) is an enzyme specific to pregnancy, determinable in small amounts, produced by the placenta and useful in the assessment of placental function. It is particularly useful as an index of placental function in moderate and severe pre-eclamptic toxemia, post-maturity and when fetal growth seems to have ceased. In the normal healthy pregnancy, significant levels are reached after 16 weeks and show a progressive rise, reaching maximum levels in later weeks. Sera from involved pregnancies have significantly lower enzyme levels. Serial determinations by colorimetric methods are recommended every one to three days. Its advantages over hormone measurements are the ease of collection of the specimen, its non-fluctuating values and its simplicity, accuracy and precision of determination. Duplicate readings are usually within one to two per cent and rarely exceed five per cent.

The increase in alkaline phosphatase of pregnancy is due almost entirely to the heat stable fraction comprising nearly 50 per cent at term. This fraction is felt to arise from the placenta and shows consistent, progressive rise beginning from about 32 to 34 weeks gestation. Messer revealed that if a single determination after 34 weeks showed a value of fewer than 3.0 K.A. units or if the heat stable fraction was less than 25 per cent of the total, fetal outcome was usually poor.

Human placental lactogen is a new test measured by radioimmunoassay techniques. It shows a progressive rise from early pregnancy until delivery in normal pregnancy, and in one case of diabetes mellitus showed a decrease prior to death suggesting this may be a useful placental function test although further studies are necessary.

Plasma diamine oxidase (DAO or histaminase)

levels are determined by radioassay techniques and show promising value in identifying high risk pregnancies and fetuses that may develop long term disability as infants. Plasma DAO reaches significant levels in the first half of pregnancy which then plateau and slowly increase to term. The fetus is necessary for DAO production.

ATROPINE TRANSFER

Hellman and Fillisti have been the main proponents of the atropine transfer test for determining placental circulatory function. The test is based on the maternal intravenous administration of atropine and subsequent timing of the onset of fetal tachycardia. This procedure necessitates almost continuous use of an analog computer and still has not been sufficiently precise to serve as an indicator of placental function in any one individual. When placental function is sufficiently reduced to result in fetal growth retardation, the fetal heart rate is not accelerated by the injection of atropine into the mother. The probability of this becoming a clinically useful test is quite remote.

VAGINAL CYTOLOGY

Studies of the use of the culpecytoprogram in the diagnosis and evaluation of fetal distress have been somewhat conflicting. It is only of value in the hands of the most experienced hormonal cytologist and it is yet to be proven if the smear will reflect altered endocrinology early enough to predict fetal jeopardy and prevent fetal death.

OTHER STUDIES

Several excellent articles have been written presenting a brief review of fetoplacental function tests including those previously mentioned plus others. These articles may be of interest to those wishing to further their investigation of this subject.

Summary

The earlier the diagnosis of fetal distress is established and proper management undertaken, the lower will be fetal morbidity and mortality. An attempt has been made to present several clinically useful tests with which any physician practicing obstetrics should be thoroughly familiar. Also presented are several of the more promising research and experimental techniques which with future technological advancements may furnish the necessary information to provide the utmost in obstetrical care.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.



CP + T

Newsletter

Antacids

Antacids are among the most widely used of all drugs. These agents are readily available without prescription, in numerous preparations which vary in active ingredient, flavoring, additives, dosage forms, and just variable brand names for essentially the same preparation. The non-absorbed antacids are the oxides, hydroxides or salts of magnesium, calcium and aluminum. There are significant differences between preparations which contain these cations, and the following discussion will point up some considerations in the choice of an antacid.

The objective in the use of antacid therapy in the management of peptic ulcer is the elevation of gastric pH to approximately 5.0, above which the proteolytic enzyme, pepsin, is no longer active. Of all of the commonly available antacid components, only sodium bicarbonate, calcium carbonate and magnesium oxide or hydroxide effectively achieve this goal. Aluminum-containing preparations and magnesium trisilicate in themselves are generally ineffective, raising the gastric pH only slightly.

Calcium carbonate is among the cheapest and most effective antacids but has several disadvantages which limit its use in the chronic management of peptic disease. Many patients object to its chalky consistency and are troubled by its constipating properties which can be alleviated by adding varying amounts of magnesium oxide to the antacid regimen. In some patients, especially those with pre-existing renal disease, chronic calcium carbonate administration may result in the milk alkali syndrome, with renal calculi and progressive renal damage. Patients receiving calcium carbonate should be checked regularly for

evidence of impairment of renal function or kidney infection. Interestingly, acid rebound, a phenomenon of hyperacidity after effective antacid therapy, has been demonstrated only after the use of calcium carbonate.

Magnesium oxide or hydroxide is the other effective non-systemic antacid. As with calcium, the small amount of magnesium ion which is absorbed upon intensive prolonged therapy may cause adverse side effects in the presence of impaired renal function. Hypermagnesemia may be manifested as somnolence and central nervous system depression. Milk alkali syndrome may also result from the use of magnesium-containing antacids in combination with large amounts of milk products which contain calcium and vitamin D. In contrast to calcium carbonate, magnesium hydroxide (milk of magnesia) has cathartic properties. To compensate for this laxative effect, aluminum hydroxide is often added to magnesium hydroxide-containing preparations.

Aluminum hydroxide has only a relatively slight antacid effect and its protein (pepsin) binding properties are probably of minimal therapeutic consequence in the management of ulcer disease. As noted, the constipating quality of aluminum hydroxide provides necessary balance to magnesium hydroxide in preparations which contain this effective antacid. Aluminum is tightly bound by certain drugs which chelate cations. Among these are tetracyclines whose absorption from the gastrointestinal tract is very erratic in the presence of aluminum. Therefore, aluminum-containing antacids and tetracyclines should not be administered orally at the same time. Carbonates bind elemental iron and may interfere with absorption of iron salts. This interaction is generally not a problem clinically.

Aside from effectiveness in neutralizing acid and

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

general absence of systemic effect, there are other factors which must be considered in selecting an antacid for long-term use. Since the drugs are emptied from the stomach within an hour after administration, they must be taken very frequently and in large amounts. Although the tablet form is much more convenient, it is not as effective. The particle size and dispersion of the liquid antacid must also be such as to give rapid and effective neutralization. Palatability and cost are other considerations in the selection of an antacid. Finally, the sodium content of antacids is by no means negligible and patients in fluid retaining states can accumulate much water, secondary to sodium which is inadvertently administered with an antacid. A previous issue of the CP&T Newsletter (January, 1968) provided a list of the sodium content of various antacid preparations. Most physicians are well aware of the electrolyte imbalance (metabolic alkalosis) which can result from indiscriminate long-term ingestion of absorbable antacid (e.g., sodium bicarbonate). The chronic administration of these agents is, therefore, generally avoided.

Antacids have continued as the mainstay of therapy of hyperacidic and ulcer disease and can generally be taken in huge quantities with no hesitation. Nevertheless, the aforementioned considerations should prove helpful in the selection of the best preparation or combination of preparations for the individual patient.

Future of Medical Care

(Continued from page 420)

act professionally, prevent hospitals from becoming hotels and open them to the critically ill.

Summing it up, the public demands are three: to be able to secure the medical services required, to get the best possible service the science of the day makes available, and to be billed for those services in a manner that the patient can understand and so that he may be able to pay.

There may be better plans than the four-level system I suggested for Kansas earlier in this paper. But that is close to what we now have. It would be an improvement. It is within the realm of possibility. The members of the Kansas Medical Society themselves should take the lead in organizing this four-level service rather than waiting for the federal bureaucrats to do it for them.

I am lucky that a top-notch physician lives next door. Three more reside in the next block, and a squad of them are within a two-minute drive of my house. My relations with our family physicians are such that they will come when they are called, may even slip me in the back door of their offices, and they know they will be paid. They even will buy me a drink or so.

But thousands of Kansans have no such luck. There may be no doctor at all in their town. If they live in a city, they do not know which doctor to call. They are fearful of hospitalization. They are confused by their bills. And they are confounded by their insurance practices. They dread losing their savings because of a major illness.

I have suggested some ways those out of luck may be helped. Money is required, much of it federal tax money. But above all, any remedy demands direction and organization, far-seeing and unselfish action upon the part of the medical profession. You are ethical men with scientific minds. I hope you will be as quick to take the initiative as to prescribe an antibiotic. It is as important to turn to new ways as to new drugs. And to Kansas, placebos won't do. Thank you for your bedside attention.

PEDIATRICIANS ISSUE RECOMMENDATIONS TO COMBAT DRUG ABUSE

To combat drug abuse among adolescents, factual material about drugs commonly used by young people should be presented honestly, and a suitable environment should be created to relieve school and family pressures and help youngsters find better challenges.

These are among the recommendations made by the American Academy of Pediatrics in a statement on adolescent drug abuse appearing in the July issue of *Pediatrics*.

The statement, developed by the AAP's Committee on Youth, also recommends that pediatricians recognize the different motivations for drug abuse by adolescents, and further calls on physicians to appreciate the need for confidentiality in treating this problem.

"As with a good many other health problems in adolescents, the pediatrician frequently has a unique, primary opportunity and responsibility as physician—one in which an atmosphere of trust may be developed, and perhaps a program of total care may result," the statement emphasizes.

Discussing confidentiality, the Academy statement recognizes the necessity and helpfulness of informing the youth's parents about a drug abuse problem, especially if drug abuse is a continuing problem.

However, the Academy indicates that conversations with parents can justifiably be delayed so that the adolescent, with encouragement by the physician, will himself agree to involve his parents. The physician may assist the adolescent in selecting the best time to do this.

In evaluating educational approaches to the drug abuse problem, the Academy statement points out

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Clinical Cardiology

Hypotension and the Shock Syndrome in Myocardial Infarction

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HYPOTENSION IS A common and often benign consequence of myocardial infarction while the "shock syndrome" is a less common, but often fatal complication. Precise definition and clear understanding of the hemodynamic consequences of myocardial infarction are, therefore, necessary for management.

Blood pressure alone is not a good index of the patient's clinical status. Blood pressure (BP) is a function of both cardiac output (CO) and total peripheral resistance (TPR) is indicated by the simple relationship:

$$BP = CO \times TPR$$

Thus, BP will be reduced if either CO or TPR are reduced.

Shillingford and colleagues have shown that there are two physiological patterns associated with arterial hypotension depending upon the state of peripheral resistance. In one group of patients, the hypotension is clearly related to a reduced cardiac output and the peripheral resistance may be normal or increased. In the second group, TPR is reduced but the cardiac output is normal. These two groups can sometimes be distinguished clinically. The first group with increased resistance presents with cool extremities and a small pulse volume while the second group is characterized by warm extremities and a full pulse.

Hypotension exists in at least 80 per cent of patients following myocardial infarction and in most patients the blood pressure will return to normal levels with the relief of pain and the administration of oxygen. The hypotension occasionally persists for weeks or months, but is often unassociated with significant symptoms.

The Shock Syndrome

The shock syndrome occurs in about 20 per cent of patients with myocardial infarction and accounts for at least 50 per cent of the deaths now that the

mortality from arrhythmias has been reduced. The mortality rate in patients with the shock syndrome secondary to myocardial infarction ranges from 85 to 95 per cent if the syndrome is rigidly defined and clearly distinguished from simple hypotension as described above.

The following criteria for the shock syndrome define a population of patients with a mortality of greater than 95 per cent; (1) systolic arterial blood pressure of less than 80 mm. Hg; (2) clinical signs of peripheral circulatory insufficiency, cold, moist skin and cyanosis; (3) dulled sensorium; (4) oliguria with urine flow of less than 30 ml/hr, and (5) failure of improvement to follow relief of pain and the administration of oxygen.

The insult to the heart is the cause of the shock syndrome in myocardial infarction although all organ systems are ultimately involved. The function of the heart is impaired by the initial insult and this results in a decrease in arterial pressure and, hence, coronary blood flow because of its dependence upon aortic perfusion pressure. The reduction in coronary perfusion pressure and myocardial blood flow further impair myocardial function and may increase the size of the myocardial infarction. Arrhythmias and metabolic acidosis also participate in this deterioration in that they are the result of inadequate perfusion and both tend to perpetuate the precipitating conditions. It is this negative feedback relationship (impaired cardiac function—arterial hypotension—reduced coronary blood flow—impaired cardiac function) which accounts for the high mortality associated with the shock syndrome.

Cardiac output is lower in a population of patients with shock than in those who do not have the shock syndrome, but this is by no means the whole explanation. There are many patients with myocardial infarction without shock who have cardiac outputs in the same range or lower than those measured in patients with shock. Therefore, it is not possible to characterize these patients on the basis of changes of cardiac output alone.

Total peripheral resistance, the other factor important in determining blood pressure, may be either

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normal, increased, or decreased in myocardial infarction. Here again, a similar range of values for total peripheral resistance can be seen in patients in the absence of shock. Normally, a fall in cardiac output is accompanied by a compensatory rise in total peripheral resistance, but in patients with shock due to myocardial infarction the appropriate response in peripheral resistance fails to occur. Thus, it appears that the total peripheral resistance is inadequate to support blood pressure at the existing level of cardiac output, regardless of the extent of reduction of the latter.

Treatment

The objective of treatment is the interruption of the negative feed back loop whereby impaired myocardial function leads to a reduction in arterial pressure, decreased coronary blood flow and a further depression of left ventricular function. This objective is approached by attempting to improve cardiac function and to raise the arterial blood pressure.

Vasopressors constitute an important form of therapy for shock of myocardial infarction. A small increase in arterial pressure may result in a sizable increase in coronary blood flow. The best vasopressors for use in myocardial infarction are norepinephrine (Levophed) and metaraminol (Aramine) which act both on the alpha receptors in the arterial wall and also on the beta receptors in the myocardium. Thus, the practical experience with the treatment of shock in myocardial infarction is consistent with the theory of pathogenesis which emphasizes the dual nature of the pathophysiology in that drugs which act on both the heart and the peripheral circulation are the most effective.

Consideration of the central role of impaired myocardial function in the shock syndrome leads to the conclusion that cardiac glycosides should be administered to all patients with this condition. Obviously, the cardiac glycosides cannot improve the function of necrotic myocardium, but a positive inotropic influence of the non-infarcted myocardium is desirable. It has been demonstrated that the incidence of arrhythmia and cardiac rupture is no higher in patients with myocardial infarction treated with digitalis than in a control group.

Certain general measures have proven useful in the treatment of the shock syndrome. All patients with the shock syndrome should receive 100 per cent oxygen continuously because the addition of dissolved oxygen to the plasma helps to combat the hypoxemia which is universally present. The relief of pain is important as some vasopressor reflex activity may be a response to severe pain, but narcotics should be used cautiously in view of their hemodynamic effects. Fluid volume replacement has a lim-

ited, but definite, place in the therapy of the shock syndrome due to myocardial infarction. It may be indicated in patients who have been receiving pressor drugs for a prolonged period because pressor therapy results in a decrease in plasma volume secondary to the movement of fluid into extravascular space. In such patients, if central venous pressure is low and there is no evidence of pulmonary congestion, the blood pressure may be easier to maintain after plasma volume has been expanded by the administration of plasma or salt poor albumin. Venous pressure should be monitored and the lungs examined frequently during the administration of plasma. Also, fluid replacement is necessary in patients who have lost extracellular fluid volume consequent to vomiting or sweating.

The high mortality and relative ineffectiveness of conventional therapy has provided the stimulus for the investigation of other approaches to the problem. The basic defect in the shock syndrome is impaired myocardial function and, therefore, many mechanical assist devices are currently under investigation. The therapeutic value of hyperbaric oxygen therapy is also under study. Studies with experimental animals are encouraging, but clinical trials have been disappointing. A large fraction of patients with the shock syndrome have severe, diffuse coronary atherosclerosis with large areas of infarcted myocardium. It is in this group of patients that total replacement of the heart by a homotransplant or an artificial device will have its greatest potential usefulness. Circulatory assist devices may have their greatest use in sustaining life until this is possible.

Journal on Microfilm

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Rubella Vaccine Recommendations

(The following statement on rubella vaccine recommendations was prepared for the information and guidance of the medical profession, and sent to us by the AMA's Council on Environmental and Public Health.—Editor)

Background Information

WHILE RUBELLA (German Measles) is generally a mild disease when contracted during childhood, in postpubertal individuals, particularly females, there is considerably greater potential for harm. The illness is often more serious and prolonged and not infrequently has complications such as arthritis, arthralgia, and rarely, encephalitis. In addition, when rubella is present during pregnancy, especially during the first trimester of pregnancy, but also during the second trimester, from 15 to 35 per cent of the infants may be born with what is now known as the congenital rubella syndrome. This includes partial or total loss of hearing or vision, major heart defects, mental retardation or combinations of these defects. In addition, there is a significantly increased proportion of miscarriages and stillbirths. Thus, serious transplacental damage is done by the virus.

The incidence of rubella shows a seasonal increase in the spring, generally during March, April, and May, in the United States, and these seasonal increases, in turn, have superimposed on them major national and international (increases) epidemics occurring at irregular intervals of from approximately six to nine years each. During the last 40 years, there were three exceptionally high pandemic peaks that occurred about 1934 and 1935, 1942 and 1943, and 1964.

The primary goal of rubella vaccination is the prevention of the congenital rubella syndrome, with secondary goals of preventing rubella in postpubertal patients where disabilities are usually more serious than the relatively mild disease that it causes in young children.

Vaccine Development

In June 1969, the first rubella vaccine was licensed in the United States. This was an attenuated live virus, manufactured by Merck, Sharp and Dohme. It is made from the HPV-77 strain that has been grown on duck embryo cell culture. This vaccine was tested on over 13,000 susceptible children prior to licensing, with essentially no adverse reactions, although transient arthralgia or arthritis and rash did occasionally occur in older patients.

Smith, Kline and French are currently manu-

facturing an attenuated live virus rubella vaccine from a different strain (Cendehill). This is grown on rabbit kidney cell culture in Belgium and probably will be licensed in the near future in the United States. There is a similar expectation for an attenuated live virus vaccine that has been grown on dog kidney cell culture by Phillips-Roxane. In addition, experimental work is progressing at the Wistar Institute in Philadelphia with a still different virus strain (WI-38), which is being grown on human embryo lung cell culture (Diploid cell). Thus, it is very likely that prior to the next seasonal peak, which would be anticipated in spring, 1970, millions of doses of at least three different rubella vaccines will be available for use in the United States.

It is known that, following vaccination, virus particles are shed from the nasopharynx and uterine cervix. However, there have been no reports of cases of rubella as a consequence of the shedding.

Vaccine Administration

The currently licensed vaccine is administered by a single subcutaneous injection of reconstituted lyophilized vaccine. The label and insert instructions should be carefully read and followed. The following precautions are recommended.

Pregnant women must not be given the vaccine because the viremia that follows vaccination and lasts two to six weeks may permit the virus to pass the placental barrier and affect the growing fetus.

If vaccination of a nonpregnant woman in the childbearing age is anticipated, special safeguards should be taken. These might include testing the woman to make sure she is not already immune to rubella* and would include carefully weighing the advantages of vaccine administration against the disadvantages, including the possibility of her becoming pregnant, with the likelihood that the fetus might miscarry or develop the congenital rubella syndrome. If the physician believes that vaccination is desirable, he should prescribe a medically acceptable method for contraception and should explain the potential risk of becoming pregnant to the patient, and, preferably, obtain written, informed consent for the vaccination.

Because of the possibility of placental transfer of

* The only reliable evidence of immunity is a positive serological test. However, because of the variation among reagents and technical procedures, results of serological tests should be accepted only from laboratories of recognized competency that regularly perform these tests.

maternal immune bodies and the likelihood of these interfering with the development of immunity following vaccination, it is recommended that the vaccine not be administered to children under one year of age. The presence of other virus diseases or any febrile active generalized infection, as well as the use of corticosteroids, irradiation, alkylating agents or antimetabolites or other agents that would weaken the normal defense mechanisms of the individual are contraindications to the use of rubella vaccine. Other contraindications include concurrent use of a different live virus vaccine (e.g. measles or poliomyelitis). Administration of the rubella vaccine should then be deferred for at least four to six weeks.

For the Merck, Sharp and Dohme vaccine (Lyovac-Meruvax), epinephrine should be available for immediate use in case of an anaphylactoid reaction. The vaccine (which is grown on duck embryo cell culture) should not be given to individuals who are sensitive to duck or chicken eggs or feathers and, inasmuch as each dose of the reconstituted vaccine contains 25 micrograms of neomycin, individuals sensitive to this drug should not receive vaccine.

General Recommendations

Inasmuch as the vaccine currently available in the United States is still relatively new (about 13,000 susceptible children had been observed for adverse reactions prior to licensing), it is possible that unanticipated adverse reactions, particularly in older patients, may occur with the general use of the vaccine. Therefore, it is recommended that any serious adverse reactions be reported promptly to the State Health Department and to the manufacturer who is responsible for reporting it to the Division of Biologic Standards of the National Institutes of Health.

While the frequency of naturally acquired immunity varies considerably with the age of the patient and the incidence and prevalence of the disease in a particular community, the National Communicable Disease Center estimates that about 15 per cent of the children under five years of age have become immune through naturally acquired disease, and that for the other age groups the respective natural immunity levels are approximately 35 per cent for the five to nine year olds, 60 per cent for the ten to fourteen year olds, 75 per cent for the fifteen to nineteen year olds, and 85 to 90 per cent for those twenty to thirty-nine years old.

These figures vary from community to community, but may be used as a general guide for the desirability of performing screening tests for susceptibility prior to giving the vaccine. However, each person should be evaluated on an individual basis whenever possible.

For widespread use, in view of the lack of adverse reactions in small children and the fact that about two thirds of the children under ten would be susceptible, all should receive the vaccine without doing a preliminary serological test for susceptibility. Children in kindergarten and the early grades of elementary school deserve initial priority for vaccination because they are commonly the major source of virus dissemination in the community. A history of rubella illness is usually not reliable enough to exclude children from immunization.

In view of the fact that circumstances will differ in various localities, it is recommended that group programs and public health programs should be launched on the basis of a coordinated plan, developed jointly by state and local public health agencies in cooperation with state and local medical and osteopathic associations.

Combating Drug Abuse

(Continued from page 428)

that teenagers "consider hypocrisy the greatest sin and frankness is exalted." Thus, the AAP emphasizes that ill-founded statements incorporating sensationalism or scare techniques should not be a part of any educational program aimed at combatting drug abuse.

The AAP Committee on Youth further stresses physician understanding as essential in treating the drug abuse problem among young people.

"If the adolescent finds a physician who can provide factual information, who has a knowledge of current drug jargon, and who is willing to listen, he will be relieved, possibly establish rapport readily, and may even welcome an opportunity to return," the statement points out.

Summarizing the forces which may influence boys and girls of junior high and high school age to take drugs, the AAP statement enumerates these possibilities: (1) prove their courage by indulging in risk taking; (2) act out their rebellion and hostility toward society; (3) facilitate sexual desires and performance; (4) elevate themselves from loneliness and provide an emotional experience, and (5) attempt to find the meaning of life.

"Drug abuse in children and adolescents is a major source of concern to parents, educators, law enforcement agencies, and physicians," the Academy statement concludes.

"For the pediatrician as well as the others, a challenge exists to find more appropriate ways of help for young people who turn to drug abuse for the answer that is not there."

The President's Message

K.M.A.S.

Our medical assistants have just completed their 15th circuit course. The program again was an all inclusive one covering the varied activities of the women we could not do without.

We should be very proud of this organization. It was, if not the first of its kind, at least one of the earliest. And the early organizers of this group were instrumental in the formation of the national group. Miss Maxine Williams was the first president of both organizations. Mrs. Carmen Kline, also of Kansas City, Kansas, was the first treasurer of the national group. Many others of our Kansas society have been prominent in the national organization.

The support given the medical assistants by the members of our Society varies from red hot to lukewarm. I've always been one of the red hot variety. With a Girl Friday of twenty years tenure, the advantages to me from their educational program alone have been tremendous. The contacts that she has developed with other office assistants have been an added plus.

I feel that the physicians who are not too aware of this organization should look into it. The advantages to him are so great that he not only should encourage his assistants to join but should underwrite the expenses involved. Like all dues, theirs have risen and this discourages some from joining.

Money spent here may very well be your best investment.



LELAND SPEER, M.D.
President



Medicare Administrative Alternatives, Prospects and Trends

JOHN A. BUESSELER, M.D., Columbia, Missouri

Dateline, Washington, D. C., Oct. 19, 1968: The American farmer of the future may be just on the bottom step of a giant ladder-like system that will plant, harvest, process and package the nation's food all under one economic roof. However, the prospect, as envisioned by a number of agricultural experts, is not viewed with universal enthusiasm. Professor Elmer R. Kiehl, Dean, College of Agriculture, University of Missouri, said that a farming system too tightly structured could result in "economic feudalism not unlike that of the Middle Ages in Western Europe." Under such circumstances, Kiehl said that the farmer, as he is thought of today, would no longer exist.

He was speaking of the main topic under discussion in Washington at the Agricultural Research Institute of the National Academy of Science. The hybrid-corporate or quasi-non-governmental corporate farm of the future would contract the actual tilling of the soil and tending of animals. Efficiency, relying upon the use of computers, would be the keynote in virtually every phase of the giant corporation from scheduling and planning to projecting consumer demand. Big food processing companies and nationwide grocery chains already are headed in this direction, according to the specialists.

The relative position of the farmer economically in the American food production-distribution system is indicated by the fact that the retail consumers spend 100 billion dollars annually on food while the farmers receive 12 billion in income.¹

That sufficiency of food is considered a right of members of our society is fairly well attested to by the welfare laws. That farming is considered a quasi-

With the enactment of Medicare legislation by the 89th Congress in 1965, the federal government committed itself to the responsibility of financing the health needs of a large segment of the population. The magnitude of the program gives it a potentially overwhelming directional influence over the health care system of the nation. As a prognostic view of these influences, this paper was presented originally at the 12th Annual Forum of the National Committee for Research in Ophthalmology and Blindness. Doctor Buesseler holds a Master of Science degree in Business Administration and is a Ph.D. candidate in Business and Public Administration. He is a Professor of Surgery (Ophthalmology) at the University of Missouri School of Medicine.

utility also is fairly well supported by the mechanisms of subsidy and regulation effected through the Department of Agriculture.

Directional Forces

This news release indicates rather forcefully that medicine is not alone in feeling the pressures for rapid and sweeping organizational change. Many of the same basic forces affecting the health care system also are affecting other organizational systems in this country.

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My purpose is to identify and focus on some of the directional forces which are operating in our social environment and are directly or indirectly influencing the course of change occurring in the American health care system in general and in the administrative conduct of Medicare in particular.

It is not my intention to suggest value judgments regarding the desirability or lack of desirability of the direction in which these forces are moving society, but, rather, to explore briefly their impact as manifested in the trends affecting our medical care system.

Efficiency. Foremost among these trends is the drive for efficiency, particularly in the use of facilities. The echelonment of health institutions has been well demonstrated by the military services. Much is found in the current literature about comprehensive health plans and hospital administration, suggesting that these military techniques and devices be used in the civilian sector and that centralized teaching in specialty care institutions be the hub of the wheel around which satellite facilities with lesser capabilities would exist.

This already has been occurring on an evolutionary basis. With greater control of society's direction by legislation, however, the process may well increase. Such echelonment will place teaching hospitals in a position of particular pre-eminence not only educationally, but in the rendering of care and in the referral scheme for patients.

Additionally, the drive for efficiency is directed to the use of personnel. The big push in recent health care legislation governing allied health manpower points dramatically to this. Ancillary personnel, both in administrative and in technical health fields, is expected to come into the practice of medicine in much greater numbers and variety.

This is intended to supplement the capabilities of the individual physician so that his skills are distributed more widely and so that he is less encumbered with details of administrative processing and with the more mechanical routine details of diagnostic and therapeutic procedures.

The implications of enlargement in this body of health care workers is quite apparent. Ophthalmology has felt this as much or more than some other fields in medicine. For several decades, the optometrist has represented this kind of skill, operating autonomously rather than as an integrated part of the health team.

Economy. The second trend which seems apparent, regardless of the national political drift, is for economy. Greater emphasis by the government on cost accounting and cost control is being instituted. The concept of unit cost in health care has great attraction to many hospital controllers, governmental

planners and administrators. It is a unit by which they can measure service. Whether or not it is a snare and a delusion is open to question. Whether grading services by X number of unit values is one with which the physician can live remains to be seen.

In the realm of hospital services, unit cost is making its biggest advances largely under the pressure of the reasonable cost element in the Medicare law. As yet, reasonable cost has not been imposed upon the physician. Reasonable charges have. By virtue of steady escalation of financial commitment by the government to the Medicare-Medicaid program, the dollar totals have far exceeded cost estimates prior to institution of the program. Powerful forces are declaring that it is necessary to control the reasonableness of the costs and the charges.

In this regard, organized medicine may lose the support of one of its staunchest allies, private industry. Industry itself is pressing for greater economy and efficiency in the delivery of health care. This drive for economy is manifested in pressure for more restricted budgeting of costs for services rendered by both the hospitals and physicians.

The most popular concept under consideration is *advance budgetary review* for hospitals under the Medicare program. This allows for justification, acceptance of cost and payment before the fact rather than payment after the fact. The present scheme of paying after the fact does not appear viable. Hospitals are being pressed to come forth with advanced, detailed budgets to be reviewed prior to any commitment on the part of the government for Medicare payments.

Most people who have been involved with government-sponsored research are familiar with such techniques in regard to research grants. The hospitals, as yet, have not been fully subjected to it.

How will this affect the physician who is geared to a fee-for-service varying with the number of visits and the type of case? It is apparent that the reasonable charge (usual and customary) is only an interim situation. It was necessary for Congress to incorporate that condition in the Medicare law in order to obtain physician acceptance. Organized medicine has embraced the concept but, with constant pressures for cost control, most of the people concerned with the Medicare legislation are convinced that the reasonable charge is not going to last. The alternatives are obvious: (1) the fixed fee schedule or (2) the annual contract salary.

Control. The third drive which is being experienced across society is that for centralized control. Except for those short periods of restrictive legislation accompanying our past wars, the Comprehensive Health Planning Act is the single, most sweeping and broad centralized control of the al-

location of resources that Congress has ever passed.

Controls via the Medicare mechanism appear to be manifested in a centralized control of quality. No longer will the medical profession have the sole prerogative. Care standards, however, need better defined criteria than have been developed to measure quality. The methods now used for measuring quality, utilization review committees, tissue committees, etc., are off target in providing a true measurement. More and more the payer will inject his influence into the determination of quality. And more and more the payer is the federal government.

It appears that terms of access to health care services will be removed more completely from the medical profession and placed in the hands of the third party payer. The trend for more complete insurance coverage through government control appears on the horizon. Coverage of all age groups and income levels is becoming a bipartisan political goal. Many devices have been proposed; particularly noteworthy among them are the use of negative income tax payment and variable premium payment based on reported income level.

What is the status of the physician going to be in relation to other health care workers? This, too, will not be decided exclusively by the medical profession, but rather by the vested interest groups that become established through increase in ancillary workers and through consumer interests in health care. Not unlike the field of agriculture, the cost of health care services to the third party payer indicates that the physician's portion of total cost is rather small. For him to maintain his position of preeminence and captain of the ship will require negotiation in the democracy of interaction between vested interest groups. This will extend to working conditions with the terms of practice and remuneration negotiated between vested interest organizations and payer.

I would like to quote the authorities Herman and Anne Somers from their Brookings Institution report titled *Medicare in the Hospitals, Issues and Prospects*: "It should be obvious by now that the term 'reasonable costs' is by no means self-defining. The law inevitably left much to be resolved through bargaining, pressure and counterpressure—a normal process in setting a price for a massive purchase. It establishes certain boundaries, but permits broad, administrative discretion, after consultation with the parties in interest, and consideration of customary practices. Nothing else would have been practical. Only theoretically can government unilaterally set the price at the point it considers right. In a free economy, government decisions must find an equilibrium between abstract justice and operational feasibility. The government is a powerful buyer, but

the sellers are free men and free institutions. They must come from the deliberations reasonably satisfied that they have been dealt with fairly, if the program is to operate with the necessary consent and cooperation."²

Of all the trends in Medicare, this latter trend has the greatest impact on the individual practicing physician. It is apparent that the man without an organization to represent him, is a man without representation. With the advent of Medicare, the medical societies, either the existing ones or ones to be evolved, were placed in the position in which they could become the physicians' most important representatives at the bargaining table.

Summary

I have intended to keep out of this presentation any value judgments. The intent has been to identify trends, not necessarily situations that are currently operational. What is operational in Medicaid (Title XIX) indicates a potential trend for Medicare (Title XVIII), both of which are part of the same Congressional Act. What is happening in New York under Medicaid actually is happening under the Act which is generally referred to in its entirety as Medicare. *Although no medical society operating on a national or regional basis has fully accepted the role of collective bargaining agent, its organizational presence in a socio-economic system of vested interest groups mediated by Medicare legislation is pushing it toward that functional position.*

The goals of the trend-producing directional forces are greater efficiency, greater economy and greater centralization of control. *The guidance the medical profession can effectively exert in the shaping of these goals for the best protection of the patient is dependent upon the direction taken by the organizational changes presently occurring within the profession.*

Bibliography

1. Columbia Missourian, October 19, 1968.
2. Somers, Herman M. and Anne R. Somers: *Medicare and Hospitals, Issues and Prospects*. Washington: The Brookings Institution, 1967.

We have acted as judge and jury for the retarded person and often condemned him to the life of a basketweaver in a non-weaving society. . . . There is little use in teaching a retarded youth work habits if misguided people refuse even to consider that he has the potential to work. . . . Richard Cardinal Cushing of Boston.



Personalities—IN KANSAS MEDICINE

Wayne G. Parker, who recently returned from Vietnam, is now practicing in Garden City. Dr. Parker practiced in Oberlin until a year ago when he left for Vietnam.

The president of the American Psychiatric Association has appointed **George Zubowicz**, Osawatomie, to a five-man board to survey mental institutions and state mental departments throughout the United States. Dr. Zubowicz is superintendent of the Osawatomie State Hospital.

Kermit Krantz of the University of Kansas School of Medicine was one of the keynote speakers at the annual conference for vocational home economics teachers held at the Statler Hilton Inn, Salina, in August.

William J. Madden, Jr., formerly of Goodland, is now associated with **H. L. Songer** in Lincoln. Dr. Madden and his family recently returned from California, where they lived for the past year.

Hugh Riordan, Wichita, was one of the speakers at the annual workshop for presidents and presidents-elect of the local teachers associations affiliated with the Kansas State Teachers Association. The workshop was held in Topeka in August.

Dr. and Mrs. Winstan L. Anderson moved in August from Atchison to Lawrence, where Dr. Anderson has assumed his duties as team physician for the University of Kansas football squad.

Quentin Huerter, Kansas City, recently completed a three-year residency in ophthalmology and ocular surgery at the University of Kansas Medical Center.

The director of the Division of Disease Prevention and Control, Kansas State Department of Health, **Donald Wilcox**, received a fellowship grant from the U. S. Public Health Service and began a year's postgraduate training in epidemiology at the University of Hawaii in August.

E. F. Steichen, Lenora, was a member of the Governor's committee traveling to South America in July for a Partnership Alliance with Latin America Conference. Dr. Steichen is in charge of Public Health and Medical Aid for Paraguay.

Andrew Natchigall, Newton, began a two-year residency in pediatrics at the University of Kansas Medical Center in July.

Herbert C. Miller, Jr., Kansas City, has been named Dwight D. Eisenhower-United Cerebral Palsy Professor in Pediatrics at the University of Kansas Medical Center. Dr. Miller has been chairman of pediatrics at KUMC since 1945 and is director of cerebral palsy medical training programs.

Members of the newly organized advisory board to the Johnson County health department include **A. T. Reece**, Gardner, and **Eugene W. J. Pearce** of Overland Park. The appointments were announced by **Bruce Hodges**, Olathe, director of the health department.

Irene Koeneke, Halstead, was awarded the Harold Rea Memorial in August. Dr. Koeneke received the award, named after a former editor of the *Halstead Independent*, for her work in organizing and promoting the Halstead Health Museum.

Along the Bookshelf

Clendening Medical Library

RECENT ACQUISITIONS

- Black, Perry, ed. *Drugs and the brain; papers on the action, use, and abuse of psychotropic agents.* Baltimore, Johns Hopkins Press. 1969.
- Cammer, Leonard. *Up from depression; an eminent psychiatrist tells you what depression is, how to recognize its symptoms, and what to do when depression strikes at a member of your family.* New York, Simon and Schuster. 1969.
- Cember, Herman. *Introduction to health physics.* 1st ed. Oxford, New York, Pergamon Press. 1969.
- Dollinger, Malin R. *Cancer chemotherapy.* Chicago, Year Book. 1969.
- Dukelow, Donald A. *Health appraisal of school children . . .* 4th ed. Joint Committee on Health Problems in Education of the National Education and the American Medical Association. 1969.
- Durbin, Richard L. *Organization and administration of health care . . .* St. Louis, Mosby. 1969.
- Frazier, Claude Albee. *Insect allergy; allergic and toxic reactions to insects and other arthropods.* St. Louis, Green. 1969.
- Friedman, Meyer. *Pathogenesis of coronary artery disease.* New York, McGraw-Hill. 1969.
- Gorman, Warren Frederic. *Body image and the image of the brain.* St. Louis, Green.
- Culture change, mental health and poverty.* Lexington, Univ. of Kentucky Press. 1969.
- Herbert, Don. *Secret in the white cell; 1st ed.* New York, London, Harper & Row. 1969.
- Landsberg, Helmut E. *Weather and health; Garden City, N. Y. Doubleday.* 1969.
- Lederberg, Joshua. *Health in the world of tomorrow.* Washington, D. C. Pan American Health Organization. 1969.
- Luce, Gay Gaer. *Insomnia, the guide for troubled sleepers.* Garden City, N. Y. Doubleday. 1969.
- Smith, Jason Ned. *Essentials of gastroenterology.* Kyo R. Lee. St. Louis, Mosby. 1969.
- Taylor, Selwyn Francis. *Recent advances in surgery.* 7th ed. London, J. & A. Churchill. 1969.
- Today's VD control problem . . .* New York. 1969.

Give a man a fish and he will eat for a day; teach him to fish and he will eat for the rest of his days. . . . Chinese proverb.

Book Reviews

GENETICS AND COUNSELING IN MEDICAL PRACTICE by Leonard E. Reisman and Adam P. Matheny. C. V. Mosby Company, St. Louis, 1969. 215 pages illustrated. \$12.75.

In recent years a number of texts have appeared on the market which purport to acquaint the physician with the elements of medical genetics. Because this discipline touches upon so many of the different body systems, it is exceedingly difficult to compile into a readable text all of the available information in this new burgeoning area. The authors of this book have done a reasonable job in providing a broad coverage of the field that would appear to be useful to the family physician who has little if any training in genetics. They begin by offering an "overview" of the problem and placing genetics and genetic counseling in historical perspective. They adequately point out the importance of the pedigree and the adjunctive tests that are available to assist the clinician in making a diagnosis. They then proceed systematically to approach various disorders which have a genetic component. As one might expect from a book this small, treatment in many areas is relatively superficial, although a disproportionate amount of space is given over to chromosome anomalies. It is quite likely that this choice reflects the in-research interests of the authors. The concept of genetic heterogeneity is dealt with only summarily. From a diagnostic point of view this concept is extremely important and should have been stressed more heavily.

The author's style is chatty and easily understandable. There are relatively few illustrations and the references are necessarily limited in number. However, these shortcomings are relatively minor. This book should prove a useful addition to the library of the busy practitioner and also to that of the social workers and public health nurses who are often called upon to deal with a heritable disease in a family setting.—*R.N.S.*

**USE YOUR MEDICAL
LIBRARIES
YOUR LIBRARIAN WILL BE
HAPPY TO ASSIST YOU**



Blue Shield

Medicare Hold the Line Policy (Anatomy of a Decision)

Medicare's decision to a "hold the line policy" regarding health care provider's charges was made by Mr. Wilbur Cohen, former Secretary of Health, Education, and Welfare when he decided not to promulgate a forty cent per month increase in Part B beneficiary premium rates in late 1968. In essence, this was an approximate 400 million dollar decision as Part B beneficiary premiums are matched by government contributions.

In early January, the Social Security Administration began instructing all carriers to "hold the line" by holding maximum allowable charges in effect December 31, 1968, until July 1, 1970. For services provided Medicare beneficiaries after December 31, 1968, the carriers were instructed to disallow increases in a provider's customary charge for Medicare Part B business. Rare exceptions in unusual cases might be recommended by the carrier to SSA, but, in the main, individual charges and range maximums were to be held at the level they were on December 31, 1968.

The Social Security Administration's decision to "hold the line" raised some questions to which Kansas Blue Shield could not provide immediate answers.

The first question involved Blue Shield Board approval of Medicare's decision. Since this was a change in the concept of carrier responsibility for determination of reasonable charges, would the Blue Shield Board approve our continuing the carrier contract with SSA?

The next question was, would our sponsoring Medical Society approve of the change?

Provided the first two questions were answered, "Yes," two more questions of logistics loomed on the horizon. First, what mechanical steps would be involved in implementing the new policy, and second, when could we get computer time to handle the job?

SSA's "hold the line" policy was discussed in the majority of Blue Shield District Relations Committee meetings, with individual physicians, and the Blue Shield Board with no decision made until a special board meeting on May 29, when permission was given Blue Shield to carry out the Medicare policy.

In summary, SSA regulations required that Blue Shield do three things:

1. Hold physicians' charges as effective December 31, 1968.
2. Compare actual charges to registered charges and base payment determination on the lower of either the registered or actual charge. (Individual physicians whose actual charges were less than their registered charges were notified in September as to this effect.)
3. Hold range maximums to the level they were on December 31, 1968.

Since Medicare's original "hold the line," Blue Shield has been instructed to implement the same payment guide rules for Title XIX and CHAMPUS until July 1, 1970.

It should be remembered that there has been no change in the Kansas Blue Shield program, which means that Blue Shield continues to accept regis-

(Continued on page 444)

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Disease Prevention and Control—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in July, 1969 and 1968

<i>Diseases</i>	<i>July</i>			<i>January-July Inclusive</i>		
	1969	1968	<i>5-Year Median 1965-1969</i>	1969	1968	<i>5-Year Median 1965-1969</i>
Amebiasis	—	—	—	1	5	5
Aseptic meningitis	1	4	1	7	4	3
Brucellosis	—	—	—	1	2	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	2	—	1	5	5	5
Encephalitis, post-infect.	1	2	1	1	8	2
Gonorrhea	558	401	401	2,874	2,279	2,279
Hepatitis, infectious	32	37	20	179	242	179
Measles (Rubeola)	3	—	*	7	8	*
Meningococcal meningitis	1	5	1	14	21	13
Mumps	2	3	*	93	705	*
Pertussis	—	3	3	—	3	3
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	4	1	—	6	3	2
Rubella (German Measles)	1	2	*	38	115	*
Salmonellosis	14	53	26	92	151	121
Scarlet fever	—	1	—	23	27	52
Shigellosis	7	11	7	44	40	41
Streptococcal infections	14	70	94	1,589	1,609	1,609
Syphilis	237	112	104	1,216	659	680
Tinea capitis	5	1	5	30	30	30
Tuberculosis	19	17	19	125	130	141
Tularemia	—	—	—	3	1	2
Typhoid fever	—	—	—	—	1	1

* Statistics not available for 5-year median.

INFLUENZA: 1968-69 EPIDEMIC, 1969-70
VACCINE RECOMMENDATIONS

Introduction

Forty-four states, including Kansas, experienced widespread outbreaks of influenza during the fall and winter of 1968-69; this epidemic illustrated the impact of a major antigenic shift in the prevalent influenza viruses. The Hong Kong strain responsible for the primary outbreak was the most distinctive variant among A² influenza viruses identified since initial appearance of the A² subtype in 1957. Concurrent with and following the A² "Hong Kong" outbreak, 18 states, again including Kansas, reported type B influenza. Unlike Hong Kong strain A² influenza which affected all age groups, type B influenza illness occurred primarily in school-age children.

The 1968-69 A² epidemic highlighted the problems encountered in rapidly developing and producing sufficient quantities of vaccine incorporating a new antigen. Following characterization of the A²

Hong Kong virus in September 1968, a monovalent vaccine incorporating the new strain was produced. Preliminary data from vaccine field trials conducted during the 1968-69 influenza season indicate that this vaccine was considerably less effective than would have been desirable .

For 1969-70, both standard and highly purified bivalent influenza vaccines are available from commercial sources. The formulation of these vaccines is comprised of Hong Kong strain antigen (A2/Aichi/2/68) and type B antigen (B/Mass/3/66). The highly purified vaccine is equivalent in potency to the standard vaccine but contains less non-viral protein.

Recommendations for Vaccine Use

It is unlikely that there will be more than sporadic cases of influenza due to A² strains in the 1969-70 season. Type B influenza may appear in areas where it did not occur in 1968-69. It was very prevalent in Kansas, during January and February 1969.

Until good protection is provided consistently by

influenza vaccine, it is not recommended for healthy adults and children.

Acknowledging its limited effectiveness, vaccine should be considered only for persons of any age with certain chronic debilitating conditions: (1) rheumatic heart disease, especially mitral stenosis; (2) such cardiovascular disorders as arteriosclerotic heart disease and hypertension, particularly with evidence of cardiac insufficiency; (3) chronic bronchopulmonary diseases, such as asthma, chronic bronchitis, cystic fibrosis, bronchiectasis, pulmonary fibrosis, pulmonary emphysema, and advanced pulmonary tuberculosis; or (4) diabetes mellitus or Addison's disease. Although the indications of vaccination are less clear, older persons, who may have incipient or potential chronic disease, particularly cardiovascular and bronchopulmonary, should also be considered candidates for vaccination.

Vaccination Schedule

The primary series consists of two doses administered subcutaneously, preferably six to eight weeks apart. (Dose volume for adults and children is specified in the manufacturers' labeling.) Persons at high risk who regularly receive influenza vaccines and had one or more doses of the monovalent vaccine containing Hong Kong strain antigen in the 1968-69 season require only a single full dose booster of bivalent vaccine. Immunization should be scheduled for completion by early December.

Local or mild systemic reactions to standard influenza vaccines are common. They occur in up to 50 per cent of adults and appear to be related primarily to the non-viral components of the vaccine.

Precautions

Influenza vaccine should not be administered to anyone who is clearly hypersensitive to eggs because the vaccine viruses are grown in embryonated chicken eggs.

OPINION DIVIDED ON PROPOSED NATIONAL WELFARE STANDARDS

The proposal to establish national welfare standards in order to make state payments to the needy more uniform has elicited divided opinion from the nation's independent business owners.

The National Federation of Independent Business, which polled entrepreneurs in every state, reports majority support for national welfare standards in eight states which are among the most liberal in public assistance programs. These include California, Illinois, New York and five northeastern states.

National standards and supplemental federal

money would end the wide disparities between state programs which exist today. New Jersey provides \$56 a month child support while Mississippi pays only \$8.35 per child, for example.

But predominantly negative reactions came from businessmen in the other 42 states, with dissent heaviest in the South and several Rocky Mountain states. Totalling all the responses, the Federation found that only 39 per cent of the businessmen favor national welfare standardization, while 53 per cent oppose this plan, and 8 per cent are undecided.

Respondents in Kansas voted 38 per cent "for" and 52 per cent "against" national welfare standards, with 10 per cent undecided.

Federation researchers conclude that businessmen in states with high welfare payments support the plan in hopes it would stop the migration of "welfare gypsies" into their states from the low-paying states. This problem has intensified since the Supreme Court knocked out all state residency requirements for collecting welfare. No longer able to restrict benefits to established state residents, the liberal welfare states fear "invasions" of unemployed and indigent people from other states will substantially increase their already sizeable welfare costs to taxpayers.

This is a hot issue in New York City, where welfare for one million people is costing more than it spends on education. The city refused welfare to a woman and nine of her 12 children, ruling that she came from Mississippi specifically to obtain higher benefits. The case is being contested in court.

The National Federation of Independent Business, representing more than a quarter-million businessmen, is bound by the national vote, and so will oppose adoption of national welfare standards if considered by Congress. Robert Finch, Secretary of Health, Education and Welfare, has suggested federal "maintenance payments" to the states.

The national majority of businessmen voting against such a program apparently was swayed by a number of arguments, notably the cost and the intervention of the federal government into another state function. Many who oppose the plan see it as a further giant step toward a national welfare state, and believe that each state should provide welfare as it sees fit. The federal-state Medicaid program of indigent medical care, where costs and abuses have been excessive, is cited by critics of federal welfare.

To some extent, says the Federation, the poll reflects dissatisfaction among businessmen with welfare at levels which encourage recipients to shun work.

The Supreme Court decision produced a knotty problem for states with high benefits, but most businessmen do not want a federal, multi-billion dollar solution.



DONALD D. ARTHURS, M.D.

Cherryvale physician, Dr. Donald D. Arthurs, died at his home on August 28, 1969. He was 37 years old.

Dr. Arthurs was born on May 9, 1932, at Binger, Oklahoma. After graduating from the University of Oklahoma School of Medicine in 1958 and completing his postgraduate training, he moved to Cherryvale in 1960 and had practiced there continuously. He was a member of the United Methodist Church and several medical and civic organizations.

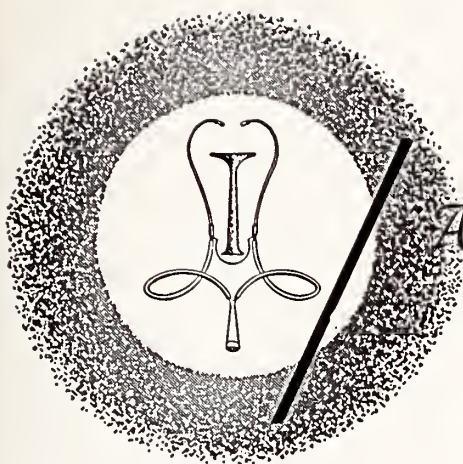
Survivors include his wife, a daughter and a stepson. The family requests memorial contributions be made to the Kansas Heart Association.

EVERETT W. JOHNSON, M.D.

Dr. Everett W. Johnson of Towanda, died August 5, 1969, at the Wesley Medical Center in Wichita at the age of 79.

He was born at Kansas City, Missouri, on January 10, 1890. Dr. Johnson received his medical degree from St. Louis University School of Medicine in 1917. He was a veteran of World War I and served in the armed forces until 1919. For a time he practiced medicine in Coffeyville, before moving to Wichita in 1920. He continued his practice there until his retirement in 1964. He was a member of the United Methodist Church, the Masonic Lodge and other fraternal and medical organizations.

Dr. Johnson is survived by two sons.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

OCTOBER

- Oct. 22-24 16th Western Cardiac Conference, University of Colorado Medical Center, Denver. For further information write: Colorado Heart Association, 1375 Delaware Street, Denver 80204.
- Oct. 23-25 Annual Fall Clinical Conference, Kansas City Southwest Clinical Society, Hotel Muehlebach, Kansas City, Missouri. For registration forms, write Kansas City Southwest Clinical Society, 3036 Gillham Road, Kansas City, Missouri 64108.
- Oct. 27-29 Annual Fall Conference, The Oklahoma City Clinical Society, Oklahoma University Medical Center. Write: The Oklahoma City Clinical Society, 2809 Northwest Expressway, Oklahoma City, 73112.

NOVEMBER

- Nov. 13-16 1969 Scientific Sessions, American Heart Association, Memorial Auditorium, Dallas, Texas.
- Nov. 16-19 Annual meeting of the Association of Military Surgeons of the United States, Sheraton-Park Hotel, Washington, D. C. Dr. Gerald D. Dorman, president of the AMA, will be the keynote speaker. Further details may be obtained by writing the Association at 1500 Massachusetts Avenue, N.W., Washington, D. C. 20005.
- Nov. 16-20 22nd annual meeting, American Association of Blood Banks, Houston. Dr. Denton A. Cooley, the surgeon who has performed the most human heart transplant operations, will be the keynote speaker. For further information write the American Association of Blood Banks, 30 N. Michigan Avenue, Chicago 60602.

- Nov. 19-22 16th annual meeting, the Academy of Psychosomatic Medicine, Mountain Shadows Inn, Scottsdale, Arizona. For more information write the Academy of Psychosomatic Medicine, 150 Emory Street, Attleboro, Massachusetts 02703.

POSTGRADUATE EDUCATION

University of Kansas:

- Oct. 21-22 *Medicine and Religion*
- Nov. 3-6 *Internal Medicine*
- Dec. 10-12 *Gynecology and Obstetrics*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

- Oct. 27 *Oral Cancer Seminar*
- Nov. 19-21 *Emergency Service Procedures*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Denver Children's Hospital:

- Oct. 24 *Intensive Care*
- Nov. 14 *Pediatric Cardiology*

For further information regarding the above continuing education courses contact L. Joseph Butterfield, M.D., Department of Continuing Education, Children's Hospital, 1056 E. 19th Ave., Denver.

University of Nebraska:

- Oct. 31-Nov. 1 *Obstetric Pediatric Conference (Lincoln General Hospital, Lincoln)*
- Nov. 8 *Cornhusker Surgery Conference (Lincoln General Hospital, Lincoln)*
- Nov. 21 *Neurology for the General Practitioner*

For further information write: Department of Postgraduate Education, University of Nebraska Medical Center, 42nd and Dewey Avenue, Omaha 68105.

University of Iowa:

- Nov. 8-9 *Radiology*
 Dec. 4-5 *Obstetrics and Gynecology*
 Dec. 5 *Cardiac and Respiratory Disease Conference*

For further information write Director of Postgraduate Education, University of Iowa College of Medicine, 100 Westlawn, Iowa City 52240.

The annual course in Postgraduate Gastroenterology, sponsored by the American College of Gastroenterology, will be held at the Rice Hotel, Houston, Texas. The program will include:

- Oct. 23 *Symposia on the Esophagus and on Cancer of the Stomach*
 Oct. 24 *Symposia on the Liver and on Malabsorption Syndrome*
 Oct. 25 *Gastrointestinal Problems in Space Medicine*

For further information write the American College of Gastroenterology, 299 Broadway, New York, N. Y. 10007.

The Council of Postgraduate Medical Education, American College of Chest Physicians announces the following continuing education courses:

- Oct. 29-Nov. 2 *Fall Scientific Assembly* (35th annual meeting), Chicago.

For further information contact: American College of Chest Physicians, 112 E. Chestnut Street, Chicago 60611.

- Nov. 3-5 37th annual postgraduate assembly, Omaha Mid-West Clinical Society, Fontenelle Hotel, Omaha, Nebraska. For more information write the Omaha Mid-West Clinical Society, 1040 Medical Arts Building, Omaha, Nebraska 68102.

- Nov. 11-14 *Clinical Electrodiagnosis of Neuromuscular Diseases*, Dept. of Rehabilitation Medicine, New York University Medical Center. For information write Joseph Goodgold, M.D., Institute of Rehabilitation Medicine, RR221, 400 E. 34th Street, New York, N. Y.

- Nov. 12-15 *Today's Hospital Problems: An Interdisciplinary Approach*. Sponsored by the Mound Park Hospital Foundation and the University of Florida's J. Hillis Miller Health Center. To be held at The Tides Hotel and Bath Club, Redington Beach, Florida. For information write to Postgraduate Medical Education, Mound Park Hospital Foundation, 701—6th Street South, St. Petersburg, Florida 33701.

- Nov. 17-21 *Correlative Neuroradiology*. New York University Post-Graduate Medical School. For application write: Office of the Recorder, New York University

Post-Graduate Medical School, 550 First Avenue, New York, N. Y. 10016.

- Dec. 8-13 The Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, announces an intensive program covering selected fields in cardiovascular diseases. Program oriented toward practical application of diagnostic techniques, basic understanding of pathophysiology of heart disease and medical and surgical management of the most common problems in cardiology. Informal workshop type sessions planned for evenings. Course intended for those interested in an extensive and detailed discussion of current aspects of cardiovascular diagnoses and therapy. Advanced registration required. Write: American College of Cardiology, 9650 Rockville Pike, Bethesda, Maryland 20014.

Blue Shield

(Continued from page 439)

trations as customary charges and will make payment on the basis of registered charges if such charge is within the Blue Shield range maximum. Blue Shield's 1969 recomputation of range maximums for basic Blue Shield business has been completed with individual physicians notified of changes in maximums which affected their charges. Basic Blue Shield payment under new range maximums will begin in mid-October.

It will be necessary, however, for Blue Shield to process Plan 65 payments on the basis of Medicare payment determination. In other words, Plan 65 will pick up 20 per cent (for example) of the charge determined to be acceptable to Medicare.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

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 7300 Mission Road
 Prairie Village, Kansas
 66208

The Month in Washington

The American Medical Association questioned whether the Department of Health, Education and Welfare has the authority to issue its recent regulation limiting physicians' fees under medicaid.

"We question whether the authority granted by the Congress embraces the promulgation of this regulation," Dr. Ernest B. Howard, executive vice president of the AMA, said in a letter to HEW.

"This regulation appears to reverse the roles of state and federal government established in the law itself."

The regulation limits most physicians' fees to the 75th percentile of the customary charge—the maximum customary fee of 75 per cent of the physicians in the area.

After offering HEW the cooperation of the AMA in its efforts to contain rising medicaid costs, Dr. Howard pointed out that the "comprehensive" care goal of the program could not be achieved "without substantial funding, both state and federal."

"Moreover, it has always been recognized that the intent of Title XIX (medicaid), when adopted, was to dissolve any barriers which existed between medical care available to the medically indigent and other citizens," the AMA statement said.

"It also recognized that payment to physicians participating in the government program should be on the basis of reasonable charges, i.e., usual charges of the physician within the customary range of charges for similar services in the community, so as to assure a broad range of participation by physicians in the program and eliminate one of the obstacles to the care of patients on the same level as that provided other persons in the community. This was essentially the approach taken in the January 25, 1969, regulations concerning "Reasonable Charges," in which "Customary charges which are reasonable" was established as the upper limit for payment for non-institutional services. We believe that the January 25th pronouncement more accurately comports

with the Congressional intent expressed in Section 1903(a) (30) of the Medicaid law, than does the new regulation. . . .

"In departing from this earlier standard, by establishing arbitrary limits on payments to individual practitioners, it should be recognized that the July 1 regulations may again raise a barrier to providing private care to the medically indigent.

"There can be no question that any fee abuses in the program, whether by individual practitioners or other providers, must be ferreted out and eliminated. On the other hand, the true effect of the proposed regulations must be kept in proper perspective, since physicians' fees represent only approximately 11% of the costs of the Medicaid program. Consequently, if the basic concern is with the total costs of the program, the remedy in our opinion, is not through regulations which restrict physicians' charges."

On the Congressional front, the medicaid law was amended to give the states some relief in fiscal difficulties arising from the program.

States now have until July 1, 1977, to submit comprehensive plans of medical care for all needy persons under medicaid. Under the original medicaid law, participating states had to come up with such a plan by July 1, 1975. But rising health care costs resulted in medicaid fiscal difficulties for so many states that Congress delayed the deadline for two years and relaxed other requirements to ease the financial bind.

One of the new amendments permits states to reduce their services under medicaid. In the past, they couldn't. But a state still cannot reduce overall medicaid spending.

Rep. Wilbur D. Mills (D., Ark.), chairman of the House Ways and Means Committee, said the changes in the law should give states some financial relief and also give Congress time to consider what long-range revisions are desirable in medicaid.

CHANGES OF ADDRESS

Members of the Kansas Medical Society will receive the JOURNAL and correspondence from the Executive Office promptly only if correct addresses are on file. Report changes to Kansas Medical Society, 1300 Topeka Avenue, Topeka, Kansas 66612.

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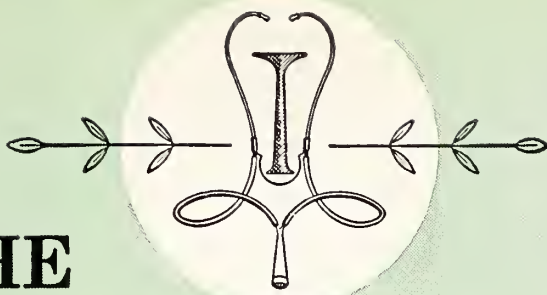
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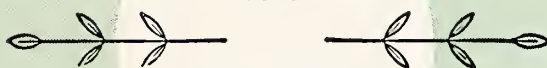
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References:

(1) Siver, R. H.: CMD, 21:109, September 1954. (2) Frykman, H. H.: Minn. Med., 38:19-27, January 1955. (3) McGivney, J.: Tex. State Jour. Med., 51:16-18, January 1955. (4) Quehl, T. M.: Jour. of Florida Acad. Gen. Prac., 15:15-16, October 1965. (5) Weekes, D. J.: N.Y. State Jour. Med., 58:2672-2673, August 1958. (6) Weekes, D. J.: EENT Digest, 25:47-59, December 1963. (7) Abbott, P. L.: Jour. Oral Surg., Anes., & Hosp. Dental Serv., 310-312, July 1961. (8) Rapoport, L. and Levine, W. I.: Oral Surg., Oral Med. & Oral Path., 20:591-593, November 1965.

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Facial Injury

Orbital and Periorbital Trauma

GERALD D. NELSON, M.D., *Wichita*

Introduction

LACERATIONS AND FRACTURES sustained by automobile passengers' heads striking dashboards and windshields is one of the most common injuries seen by physicians today. Converse¹ has described the comminuted fractures of the nose produced by these accidents. McCoy,^{7, 8} Dingman,³ and Straith,⁹ have all enumerated the various injuries that commonly occur and their proper treatment. Brow and eyelid lacerations are the most frequent dashboard injuries seen. These lacerations and the less common orbital fractures can produce permanent disability, potential eye complications and a disfiguring appearance. Attention to the anatomy of the periorbital structures can insure early recognition of these injuries and prevent potential complications.

Brow

Lacerations of the brow (*Figure 1*) frequently produce irregular scarring. Elevated skin edges of the trapdoor type lacerations can give an undesirable postoperative appearance. Lacerations of the supra-orbital nerve produce numbness of the forehead and neuroma formation of these nerves can result in an aggravating, tender area and persistent pain. All flaps of the brow should be carefully evacuated of

hematoma, the bone explored for possible fracture and a search made for the frontal and supraorbital nerve. These sensory nerves when found to be transected, should always be repaired if possible with

Orbital and periorbital trauma frequently occurs in automobile accidents. Proper treatment of soft tissue injuries is necessary to minimize functional impairment and cosmetic deformity. Reconstruction of the orbital rims and orbital floor is necessary for prevention of impairment of vision and permanent enophthalmos.

perineural sutures of 6-0 silk. A careful layer closure of frontalis muscle, subcutaneous tissue, and skin, using fine suture technique, followed by a pressure dressing can help eliminate scarring and prevent hematoma and seroma formation. The number of depressed scars, and elevated flaps can be reduced by following this type of wound care.

Eyelids

Lacerations of the upper eyelid can involve the levator palpebrae muscle. The levator muscle inserts on the tarsal plate. If the tarsal plate is exposed, the levator muscle can be assumed to have been sev-

Presented at the Kansas Chapter, American College of Surgeons, Wichita, Kansas, October 7, 1968.

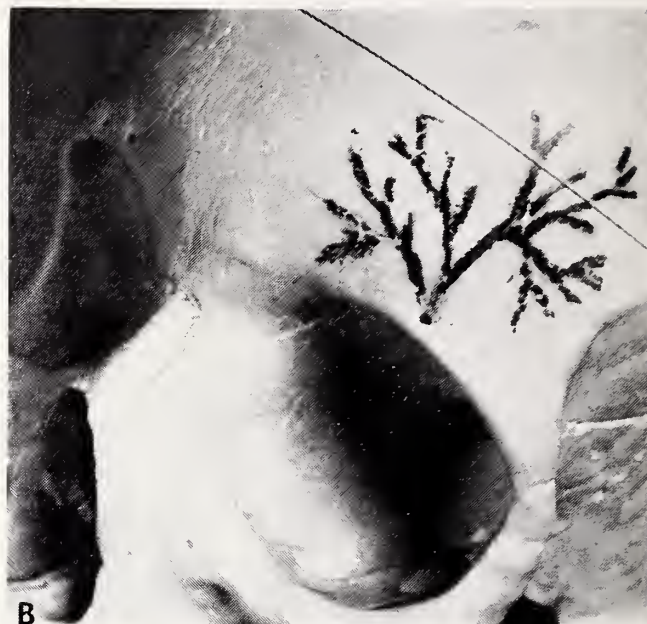
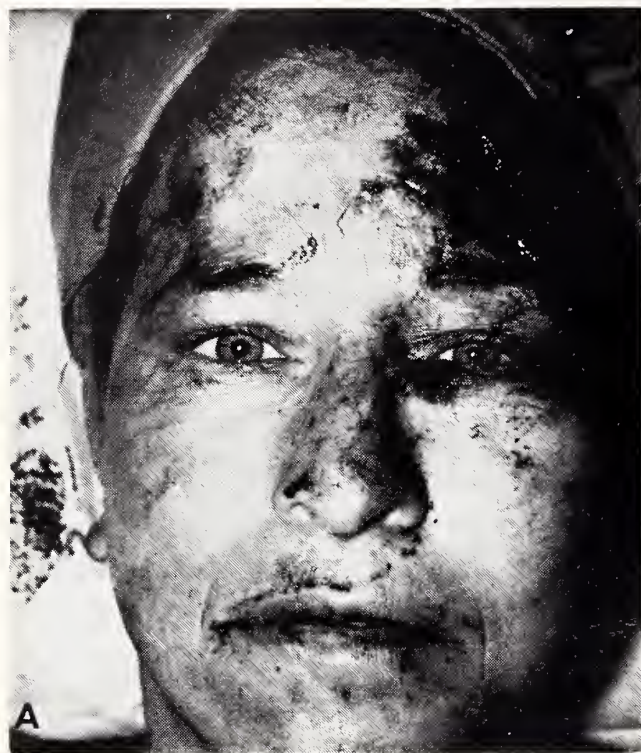


Figure 1. A. Multiple flaps of brow from windshield injury. B. Anatomical position of supraorbital nerve. C. Demonstration of denuded but intact supraorbital nerve in same patient. D. Postoperative result.

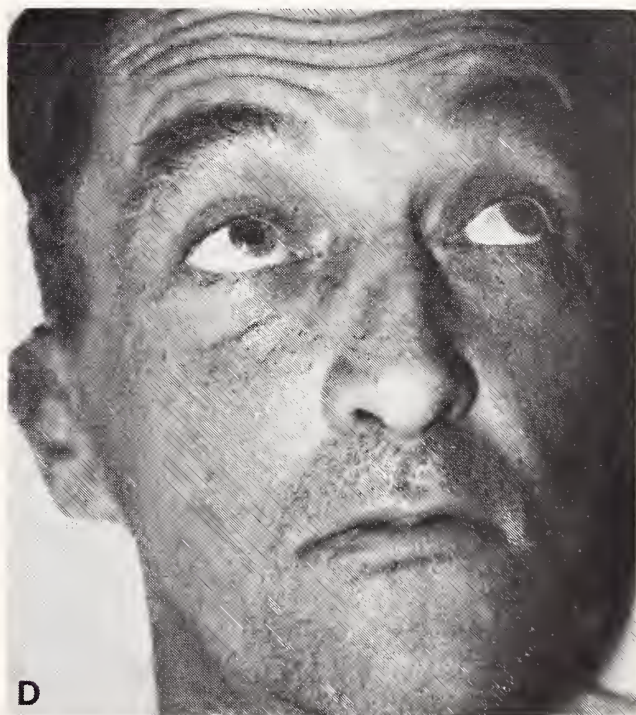
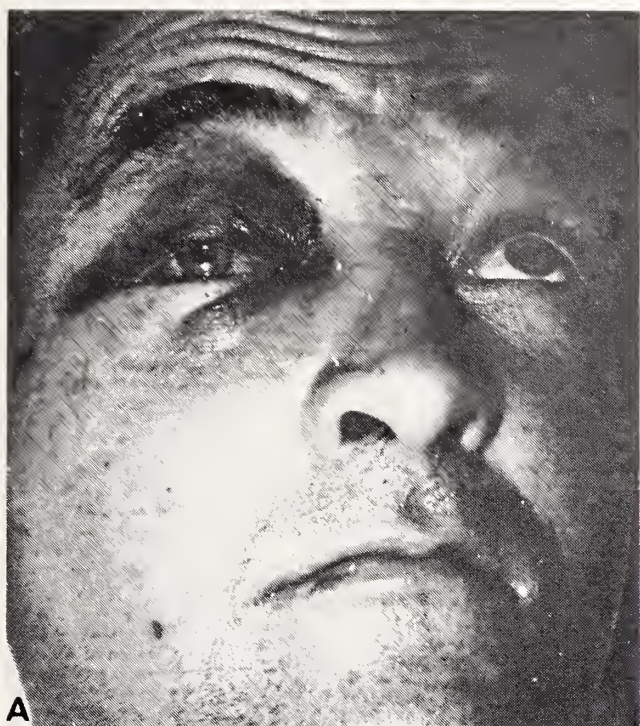


Figure 2. A. Fracture of orbital rim and floor of orbit with enophthalmos and depression of right pupil. Patient has diplopia. Restricted upward gaze of right eye due to entrapped inferior rectus muscle. B. Diagram of fracture. C. Laminogram of facial bones demonstrates fracture of floor of right orbit. D. Postoperative result. Floor reconstructed with fascia lata graft. No symptoms.

ered. If the levator palpalbrae muscle is not repaired, traumatic ptosis of that eyelid will occur. When soft tissue is missing, or the skin fragments are not properly aligned during skin suturing, the late scar contracture can produce ectropion. Due to the normal presence of less skin and soft tissue in the lower eyelid, ectropion most commonly occurs in the lower eyelid. If sufficient tissue has been avulsed, a full thickness skin graft is needed to adequately restore lid contour and function. An ectropion of the eyelid can produce chronic corneal irritation and eventual scarring of the cornea. Lid margin lacerations without loss of tissue, should be debrided and realigned to insure minimal notching defect. Reapproximation of the tarsal plate is necessary to prevent this eyelid deformity. A lap joint closure of staggering of the suture lines of the tarsal plate and lid margin will help prevent shortening of the suture line with later scar contracture. Up to one-third loss of the lid margin can be successfully closed without undue deformity. If greater than one-third of the lid margin has been destroyed, reconstruction by lid advancement, tarsal conjunctival flaps, or local skin flaps is indicated.

Orbital Fractures

Soft tissue injury about the eyelid is frequently associated with orbital fractures (*Figure 2*). Orbital rim fractures usually occur in combination with fractures extending into the orbital floor and the malar prominence. The most common of these is the frontal-zygomatic-maxillary complex with a downward shift of the lateral and inferior orbital rim and floor of the orbit with depression of the zygoma. The term blowout fracture applies to downward displacement of the floor of the orbit. Pure blowout fractures of the orbit, without orbital rim fractures, were first described in 1889 by William Lang.⁵ Blowout fractures are produced by direct blow to the ocular globe producing a compression of the globe and extraocular structures. The increased pressure of the ocular globe and surrounding structures on the thin bones of the floor of the orbit produces downward fracture of the orbital floor into the maxillary floor into the maxillary antrum.

Every person with periorbital ecchymosis should be examined for a blowout fracture. Blowout fracture of the orbit is suspected when the eye appears enophthalmic and one pupil is lower than the other. In this state the patient will complain of diplopia. The enophthalmos and diplopia is produced by herniation of the periorbital fat through the fractured site. If only a small amount of periorbital fat has extruded through the fracture site, then diplopia will only occur if the inferior rectus or the inferior oblique muscle has become intrapped in the fracture. Under these circumstances diplopia can be

elicited by checking the patient's upward gaze. The check-rein effect of the entrapped ocular muscles will limit the upward excursion and produce diplopia. Gentle traction on the insertion of the inferior rectus muscle with small forceps will verify the restricted movement. On palpation of the inferior orbital rim a fracture site may be felt if the blowout fracture is present in combination with an orbital rim fracture. If the infraorbital nerve, which passes through the floor of the orbit, is involved anesthesia of the cheek and upper lip will be present. Facial films frequently show only a bloody opacity in the maxillary antrum. Laminograms of the orbit usually show the herniation of the periorcular structures into the maxillary sinus.⁶

The treatment of the blowout fracture requires removal of the bony fragments, reduction of the orbital fat and extraocular muscles into the orbit, reconstruction of the floor of the orbit. Bone, cartilage, fascial, and dermal fat grafts have all been successfully used in this area.⁴ Teflon and silastic prosthetic replacements for the orbital floor have been frequently used.⁴ These synthetic materials, however, can react as a foreign body and require removal at a later date.

References

1. Converse, J. M., and Smith, B.: *Transaction of the American Academy of Ophthalmology and Otolaryngology*. Vol. 61, 1963.
2. Converse, J. M., and Smith, B.: Reconstruction of the floor of the orbit by bone grafts. *Arch. Ophthalmology*, 44:1-21, 1950.
3. Dingman, R. O., and IVA Tvig, P.: *Surgery of Facial Fractures*. W. B. Saunders Co., 1964, pp. 221-243.
4. Freeman, B. S.: The direct approach to acute fractures of the zygomatic-maxillary complex and immediate prosthetic replacement of the orbital floor. *Plast. & Reconst. Surgery*, 29:587, 1962.
5. Lang, W.: Traumatic enophthalmos with retention of perfect acuity of vision. *Trans. Ophth., Society United Kingdom*, 9:43, 1889.
6. Lewin, J. R., Rhodes, D. H., Jr., and Pavsek, E. J.: Roentgenologic manifestations of fractures of the orbital floor (blowout fractures). *Am.J. Roentgenology*, 83:628, 1960.
7. McCoy, F. J.: Management of orbital facial fractures. *Plastic & Reconst. Surgery*, Vol. 19:236-245, March, 1957.
8. Moore, J. R., and Siemsen, G.: An analysis of facial fractures and their complications. *Plastic & Reconst. Surgery*, 29:381-391, 1962.
9. Straith, C. L.: Guest passenger injuries. *J.A.M.A.*, 37:348-351, 1948.

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MUSTAN D. JHAVERI, M.D.; M. E. JACOBSON, M.D., F.A.C.S.;
and FRED W. ROBINSON, M.D., F.A.C.S., Wichita*

THE PROBABILITY THAT a clinician will see a patient with torsion of an intra-abdominal testicular tumor may be one in five to seven million males.¹ From 1898 until 1968, 23 cases of intra-abdominal testicular tumor with torsion have been recorded by different authors. We are reporting the twenty-fourth case. Table 1 was prepared by Packham² in 1965, and we have found three more cases^{1, 3, 4} in addition to our own.

Case Report

A 52-year-old male, married with no children, was admitted to the Veterans Administration Center Hospital, Wichita, Kansas, on November 10, 1967. Four days prior to admission, while at work, the patient developed sudden, sharp, left lower quadrant abdominal pain. His pain became colicky and was associated with nausea and vomiting. He was treated by his physician for symptoms of "intestinal flu" without relief. Later he developed constipation and oliguria. The patient stated he had an operation for double inguinal hernia with removal of the left testis in 1944. In 1952, he required transfusion of two units of blood because of bleeding due to diverticulitis of the colon.

On examination he was in acute distress with a temperature of 98.8F and a pulse rate of 64 per minute. Tenderness and rebound tenderness were present in left lower quadrant of the abdomen. The left side of the scrotum was empty. Rectal examination revealed a fluctuant, tender mass anterolaterally on the left side. There was moderate leukocytosis. Urinalysis, upright plain film of abdomen and excretory pyelogram were within normal limits.

A diagnosis of intra-abdominal torsion of testis was entertained; however, the patient insisted his left testicle had been removed at the time of his inguinal herniorrhaphy. Thirty-six hours following admission the abdomen was explored through a left lower paramedian incision with the presumptive diagnosis of perforated sigmoid diverticulitis. A marked-

ly inflamed, reddened, tubular structure was identified as torsion of the spermatic cord leading to a gangrenous testis (*Figure 1*). The mass was located in the deep true pelvis on the left side. It could be easily mobilized and was excised.

The twenty-fourth case of intra-abdominal testicular tumor with torsion has been presented and reported cases are tabulated. Undescended testes should be treated early in childhood.

A diagnosis of intra-abdominal torsion of the testis should be strongly considered in a patient with an acute abdomen when examination of the scrotum reveals that one of the testes is missing.

Pathological examination demonstrated an edematous, infarcted, dark testis, and twisted edematous spermatic cord weighing 53 grams. Microscopically, seminoma replaced all but a few hyaline spermatogenic tubules. Hemorrhage and necrosis were marked. Lymphoid stroma was sparse. The predom-



Figure 1. Exploratory laparotomy revealed a dark, infarcted, swollen testis with twisted spermatic cord.

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TABLE 1
FOUR RECORDED CASES OF TORSION OF AN
INTRA-ABDOMINAL TESTICULAR TUMOR
(After Packham)

<i>Author</i>	<i>Date</i>	<i>Age</i>	<i>Side</i>	<i>Crypt-orchidism</i>	<i>Pathology</i>
1. Gerster	1898	21	R.	Bilateral	Sarcoma
2. Stiiles	1905	39	R.	Unilateral	Sarcoma
3. Le Conte	1907	28	R.	Unilateral	Sarcoma
4. Boese	1907	38	L.	—	Sarcoma
5. Lecene	1913	40	R.	—	Seminoma
6. Key	1914	25	R.	Bilateral	—
7. Pearlmann	1927	18	L.	Unilateral	Teratoma
8. Chitty	1933	36	L.	Unilateral	Sarcoma
9. Vastola	1933	33	R.	Bilateral	Embryonal carcinoma
10. Jonsson	1933	27	R.	Unilateral	Embryonal carcinoma
11. Burk	1938	49	—	Unilateral	—
12. Whittington	1943	31	—	Unilateral	Embryonal carcinoma
13. Guibal and Goepfert	1946	42	—	Bilateral	Seminoma
14. Bennett and Shaw	1947	38	R.	—	Seminoma
15. Charendoff, Ballon and Simon ...	1951	38	L.	Unilateral	Seminoma
16. Warres	1954	20	L.	—	Embryonal carcinoma
17. Edelstein	1955	42	L.	Unilateral	Seminoma
18. Rosa	1959	10	—	—	—
19. Johnson	1960	22	—	Bilateral	Seminoma
20. Packham	1965	38	R.	Bilateral	Seminoma
21. Kauffer	1967	25	R.	Unilateral	Seminoma
22. Hansen	1967	2 mo.	R.	Unilateral	Teratoma
23. El-Rifai	1967	44	R.	Unilateral	Seminoma
24. Jhaveri	1968	52	L.	Unilateral	Seminoma

inant tumor cell was the large polyhedral type, but smaller embryonal cells were also present in fewer aggregates (Figure 2). Pseudo-follicles containing colloid-like material were interpreted as dilated spermatogenic tubules. The tunica albuginea was not pierced by the tumor.

Postoperatively, pregnancy test was negative and lymphangiography showed suspicious nodes at the L-2 level (Figure 3). Because of the above mentioned microscopic findings, bilateral radical lymph node dissection was contemplated instead of radiation therapy. The patient had an uneventful postoperative course. Except for reactive hyperplasia, lymph nodes were negative. He is alive and clinically tumor-free six months following surgery.

Discussion

A patient with torsion of an intra-abdominal testis, with or without tumor, presents himself with an acute abdomen. The clinician faces a diagnostic challenge. Proper history and physical examination are mandatory because the diagnosis rests upon them. The absence of a testis in the scrotum should alert the phy-

sician to the possibility of torsion of an intra-abdominal testis. In certain recorded cases^{1, 5} the diagnosis was not considered because of the history of orchiectomy as was given by our patient. This suggests that unless there is documented histopathological evidence that the specimen obtained was a testis, the patient's history of orchiectomy should be doubted. A so-called "atrophic testis" may be fat or lymphoid tissue.

Many urologists share the opinion that there is an increased incidence of malignancy in the undescended testis. It is more commonly seen in an intra-abdominal testis. Gilbert and Hamilton,⁶ in their excellent review of the incidence and nature of tumors in ectopic testes, conclude that in 11 per cent of recorded cases of testis cancer there is a concomitant ectopy. This is a correlation 48 times higher than expected by chance association. More recently, Johnson *et al.*,⁷ reviewed their cases of testicular tumors from 1954 to 1967 at Wilford Hall, United States Air Force Hospital. Out of 147 cases they found 12 cases (8.2%) of malignant tumors of testis were associated with cryptorchism. They advocate orchiopexy prior to age six. They further advised orchi-

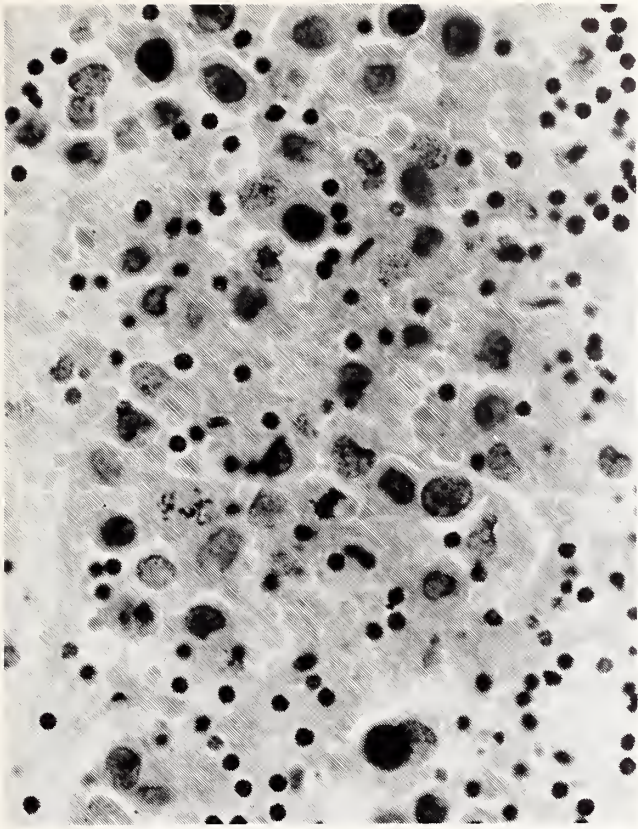


Figure 2. Photomicrograph of testis showing predominant polyhedral, epithelial cells with scattered stromal lymphocytes. Mitotic figures are seen. (H&E stain $\times 500$.)

ectomy in a unilateral cryptorchism after age ten. Ectopic position of the testis itself is not necessarily the cause of cancer. Greater incidence of tumorigenesis in cryptorchidism is directly proportional to the atrophic changes within the gonad leading to metaplasia. Shoval⁸ suggested that testicular dysgenesis may predispose the testis to neoplasia. The same congenital defect contributes to maldescent of a testicle. When a testis remains intra-abdominal, these changes may be more pronounced.

The fact that torsion has been possible in these cases would suggest that the tumor has not spread outside tunica albuginea and is free from surrounding structures. Of the 24 reported cases, none had distant metastasis at the time of diagnosis.

References

1. Garber, H. E., and Kauffer, G. I.: Torsion of an intra-abdominal testicular seminoma. *J. Urol.*, 98:684, 1967.
2. Packham, D. A.: Torsion of an intra-abdominal seminoma of the testis. *Brit. J. Surg.*, 52:25, 1965.
3. Hansen, J. L.: Tumor of undescended testicle in an infant. *J.A.M.A.*, 199:944, 1967.
4. El-Rifai, M.: Torsion of malignant abdominal testicle: Case Report. *Alexandria Med. J.*, 13:47, 1967.
5. Rosa, F., and Piovano, S.: Torsion of intra-abdominal tumoral testicle. *Bol. Soc. Cir. Urug.*, 30:141, 1959 (SP).
6. Gilbert, J. B., and Hamilton, J. B.: Studies in malignant testis tumors. *S.G.&O.*, 71:731, 1940.
7. Johnson, D. E.; Woodhead, D. M.; Pohl, D. R.; and Robison, J. R.: Cryptorchism and testicular tumorigenesis. *Surg.*, Vol. 63, No. 6:919, 1968.
8. Shoval, A. R.: Testicular dysgenesis in relation to neoplasm of the testicle. *J. Urol.*, 75:285, 1956.

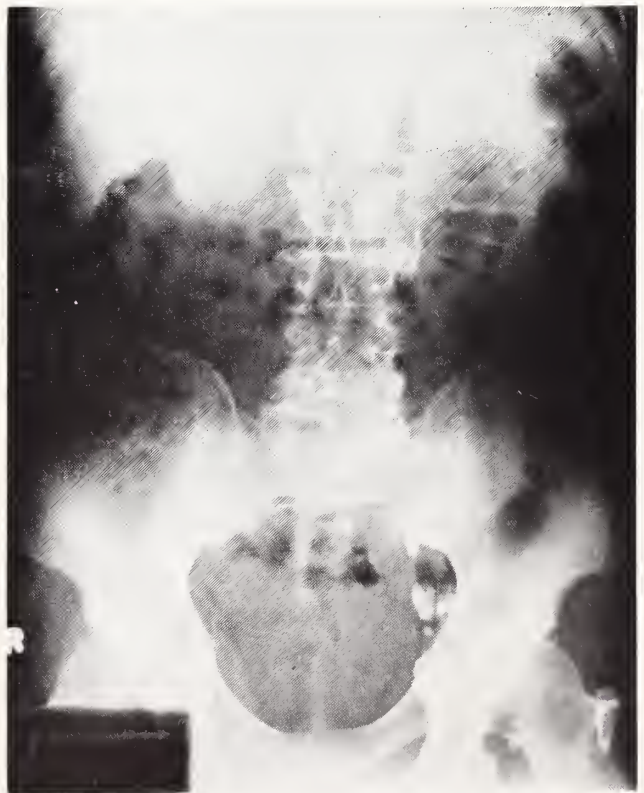
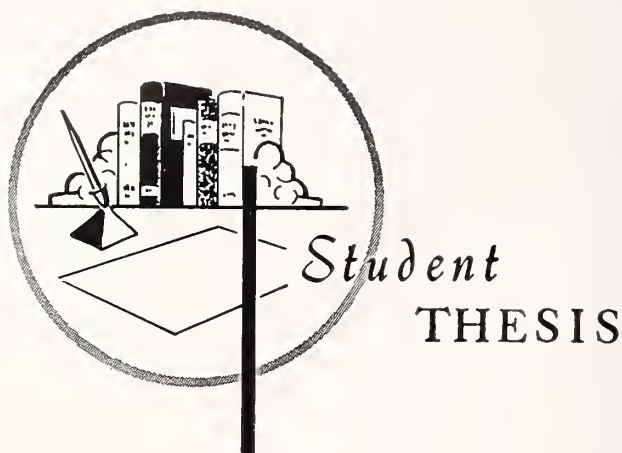


Figure 3. Lymphangiograms showing the chain of para-aortic lymph nodes. The one near left renal hilar area looks suspicious for lymph node metastasis.



Opiate Addiction

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Introduction

UNTIL RECENTLY WITHDRAWAL from opiate addiction under medical care was limited primarily to two United States Public Health Service federal hospitals. The first hospital designed especially for this purpose was the U.S.P.H.S. Hospital at Lexington, Kentucky. The doors were opened to narcotics addicts in 1935. Three years later a similar hospital was established in Fort Worth, Texas. The former hospital is open to males and females living anywhere in the United States while the latter is open only to males living west of the Mississippi. Patients addicted to non-narcotic drugs are not eligible for admission to these hospitals.

With improvement of present day techniques for assisting addicts in the withdrawal from narcotics, there has been a recent trend to attempt part of the withdrawal therapy on an outpatient basis. In this paper two cases are reviewed in which this type of therapy is being utilized. The case reviews are followed by various medical and psychiatric aspects of opiate addiction and finally by a review of the literature on the use of methadone in opiate withdrawal.

Special thanks is extended to Dr. William McNelly of the University of Kansas School of Medicine who has supplied me with the two case reports on

outpatient opiate withdrawal and who has given many useful suggestions during the writing of this paper.

Case Reports

CASE REPORT No. 1

This was the first University of Kansas Medical Center admission for this 25-year-old, twice married, male, jewelry engraver. Drug addiction was his chief complaint.

The patient stated that he had been using various forms of drugs for the past six years. He began with amphetamines and marijuana and then began using narcotics about five years ago. The patient was hospitalized twice previous to this admission at local hospitals for physical symptoms related to drug addiction.

His physical examination was within normal limits except for numerous old and new "needle-mark" scars on the upper extremities and in the area of the femoral veins. Because of the frequent intravenous injections the veins had become scarred andropy. The complete blood count, blood urea nitrogen, fasting blood sugar, urinalysis, venereal disease research laboratory test, and chest x-ray were within normal limits.

The psychiatric examination showed that the appearance of the patient was that of a neat, well-groomed man who was somewhat hyperactive and restless. Speech was spontaneous and sometimes over-productive. Thought content centered about drug addiction and his inability to "shake the habit." His orientation was intact in all spheres and there was no

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for a publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. George recently completed his internship at the Cleveland Clinic Hospital, Cleveland, Ohio.

evidence of thought disorders. Judgment and insight were estimated to be poor.

Hospital treatment included occupational therapy, recreational therapy, milieu, and group therapy, individual psychotherapy, and an oral methadone withdrawal schedule which began with ten milligrams twice daily and then was reduced to ten milligrams daily. Treatment appeared to be successful and the patient experienced only minimal withdrawal symptoms. Subsequent to initial therapy, the patient related well to the other patients and the staff and participated fully in activities. Hospitalization lasted one week.

The diagnosis was sociopathic personality disorder, drug addiction type.

Discharge therapy consisted of oral administration of methadone ten milligrams daily and regular outpatient individual psychotherapeutic sessions were scheduled.

A change in the patient's basic personality disorder is not anticipated but with present therapy his chances of controlled addiction are good.

CASE REPORT No. 2

This was the first University of Kansas Medical Center admission for this 26-year-old, married, male, unemployed laborer. He was addicted to narcotics and admitted to the hospital for withdrawal on methadone.

About five years prior to his admission, the patient began taking amphetamines on weekends. After about two years he was no longer stimulated by them. He then began taking morphine sulfate and heroin which were always administered intravenously. He first realized that he was addicted when, upon stopping the drugs, he began to have physical and mental withdrawal symptoms. He tried to stop several times on his own without success. He then went to the United States Public Health Service Hospital in Fort Worth, Texas, about a year ago and then to the Synanon Hospital in Los Angeles, California. He was not admitted to either hospital.

At one time he was taking four to five grains of morphine daily, but in the past few months he had reduced his dosage to one grain daily.

A fellow addict was being treated with methadone on an outpatient basis and this patient wanted a similar arrangement. He was also strongly motivated by the fact that he had sclerosed most of his available veins, finally resorting at times to his jugular veins.

Physical examination revealed that the pupils were mildly constricted and weakly reactive to light. There were multiple ecchymoses on the thighs and the fingers were swollen and erythematous secondary to multiple injections in the extremities.

His complete blood count, urinalysis, venereal disease research laboratory test, serum glutamic oxaloacetate transaminase, bilirubin, blood urea nitrogen, fasting blood sugar, chest x-ray, and electrocardiogram were within normal limits.

The patient was neat, well dressed, and alert. He appeared calm during the psychiatric interview, showing no apparent signs of anxiety. His speech was somewhat slurred but otherwise normal. Affect was appropriate and no disorders of thought or perception were detected. He was oriented in all spheres. General intellectual evaluation was normal, except for insight, which was judged to be poor.

During the first part of the hospitalization he was placed on methadone ten milligrams twice daily and then was slowly tapered down to ten milligrams daily. Social interaction in the community was satisfactory.

The diagnosis was sociopathic personality disorder, drug addiction type.

Discharge therapy consisted of oral administration of methadone ten milligrams twice daily, individual outpatient psychotherapy, and evaluation of the family by social services.

Personality structure change is not anticipated; however his chances of control of addiction are good.

Medical Aspects of Opiate Addiction

DEFINITIONS

Before beginning a discussion on addiction, a suitable definition is necessary. That set forth by the Expert Committee on Drugs Liable to Produce Addiction of the World Health Organization is chosen for the purposes of this paper: "Drug addiction is a stage of periodic or chronic intoxication detrimental to the individual and to society, produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include:

"1. An overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means;

"2. A tendency to increase the dose; and

"3. A psychic (psychological) and sometimes a physical dependence on the effects of the drug."

Note in this definition that physical dependence is not always a necessary feature of addiction. This feature, however, is usually considered to be a necessary part of the definition of opiate addiction. Addiction to opiates is usually described as having three important characteristics:

1. Tolerance
2. Physical dependence
3. Emotional dependence

Each of these will be discussed in greater detail in a later section.

The scope of this paper will be limited to opioid

drugs which include opium and all of its mixtures, derivatives, and related compounds. Included are morphine, heroin (diacetylmorphine), Dilaudid (dihydromorphone), pantopon, matopon, alphaprodine, codeine, dihydrocodeine, Demerol (meperidine), Dolophine (methadone), dromoran, and Prinadol (phenazocine). Because of the pharmacologic similarities of these drugs, those which are most frequently abused, namely morphine and heroin, will be mentioned most frequently and used as prototypes. The psychiatric aspects, medical aspects, and withdrawal management discussed in this paper apply to all of the drugs of the opioid group.

ADMINISTRATION, DISTRIBUTION, AND EXCRETION OF OPIATES

Opiates have been administered orally, in the form of snuff, in the form of smoking tobacco, subcutaneously, and intravenously. Because of its easily detected odor, the smoking of opium has greatly decreased in the United States since the Harrison Narcotics Act of 1914 but remains the most popular route of administration in the Orient. Oral administration of opium became more common in the Western culture and was one of the most widely used routes of intake even up until the time of Thomas De Quincey. After the widespread use of hypodermic needles, the parenteral route became the most common means of administration of opiates in the Western culture.

In the human who has received morphine, the largest part of the administered dose is found in the muscle mass. Only a small amount is found within the central nervous system. A small part of morphine is destroyed in the body—demethylation to normorphine is one mechanism of destruction. Most of the morphine (80 to 90 per cent) is bound or conjugated to pharmacologically inactive substances, best known of which are combinations of morphine with glucuronic acid. The chief site of conjugation is the liver. The bound morphine is excreted in the bile, resorbed from the intestine, and excreted in the urine.

SIGNS AND SYMPTOMS OF OPIATE ADDICTION

In the majority of persons, the first dose of morphine taken without medical need produces unpleasant symptoms such as nausea, vomiting, pallor, sweating, and itching. With continued administration most of the unpleasant side effects abate and the following general physiologic effects become apparent: depression of the central nervous system with secondary effects on the peripheral nervous system; decrease in the metabolic rate throughout the body; decrease in blood pressure and temperature;

slowing of respiration; reduction in quantity of digestive fluids including saliva; loss of appetite; reduction of intestinal fluid; reduction in effective intestinal peristalsis with subsequent constipation; a decrease in gonadal and adrenal function as evidenced by decreased 17-ketosteroids and 17-hydroxysteroids (both less than one half pre-addiction levels) and marked rise of 17-ketosteroids with exogenous adrenocorticotrophic hormone (ACTH). There is also a decrease in all sexual secretions including that of the seminal vesicles and prostate; disruption of menstrual cycles in females; and decreased, if not non-existent, sexual desire. The use of opium, especially by smoking, enables some men to maintain erections for several hours but in these cases orgasm is extremely difficult and usually absent. Frequently spasm of the vesical sphincter with concomitant urinary retention occurs. Opium addicts commonly have a generalized appearance of dehydration with dry skin, inactive sweat glands, and pale brittle nails.

Additional physiologic effects of opium prior to tolerance include: reddened conjunctiva, slight drooping of eyelids, blinking of eyes less frequently, meiosis, disappearance of the sense of fatigue, and facilitation of indulgence in fantasies.

With the intravenous use of morphine, there is sudden dizziness, dilation of the blood vessels of the skin, and mucous membranes with resultant flushing most prominent over the upper half of the body. There is intense itching of the skin, a rumbling sensation in the stomach, and a sensation of sexual orgasm referred to the lower abdomen.

The subjective pleasurable effects of opiates has probably been no more graphically described than the following account by the English writer Thomas De Quincey who himself was an opium addict. . . .

For it seemed to me as if then first I stood at a distance aloof from the uproar of life; as if the tumult, the fever, and the strife, were suspended; a respite were granted from the secret burdens of the heart—some sabbath of repose, some resting from human labours. Here were the hopes which blossom in the paths of life, reconciled with the peace which is in the grave; notions of the intellect as unwearied as the heavens, yet for all anxieties a halcyon calm; tranquility that seemed no product of inertia, but as if resulting from mighty and equal antagonisms, infinite activities, infinite repose.

De Quincey should not be remembered only for his literary genius because he also possessed the remarkable and rare qualities of being able to taper his dosage of opium at intervals. This allowed him to keep his habit in economic control and more importantly it allowed him to be in a productive state of mind much of the time.

The addict who is able to maintain an adequate supply of drugs through legitimate means and has sufficient finances may be difficult to distinguish from the non-addict after he has developed tolerance to many of the undesirable side effects. He may be well dressed, well nourished, and able to work with reasonable efficiency. There is one account in the literature of one 84-year-old physician who was addicted to morphine for 62 years. Clinical and laboratory examinations revealed no physical or mental damage attributed to the chronic effects of morphine.

Most of the time, however, the opiate addict is functionally disabled with some periods of normal alertness and well-being. However, most of the time he is either euphoric, sedated, tranquilized, and absorbed in himself or abstinent with general malaise and other associated symptoms of withdrawal.

In certain cases, medical disorders associated with opiate addiction may be the only clue to the addiction. The disorders most frequently associated with opiate addiction are: serum hepatitis, venereal diseases, malnutrition, skin infections with residual scars, superficial venous thrombosis, abscess formation in skin and internal organs, acute intoxication from overdosage, amenorrhea, fungus infections of the skin, respiratory diseases such as pneumonia, tuberculosis and bronchial asthma, psychosomatic disorders, periodontal disease, and dental caries.

SIGNS AND SYMPTOMS OF OPIATE WITHDRAWAL

The signs and symptoms of opiate withdrawal are so closely related to physical dependence, psychological dependence, and tolerance that it is very difficult, if not impossible, to understand this subject without having some knowledge of these related phenomena. For this reason each of these topics will be discussed in some detail.

Physical dependence is the need for continued administration of a drug in order to prevent characteristic somatic symptoms. According to Isbell, the rate of onset, the intensity, and the rate of decline of symptoms of physical dependence of different analgesic drugs appear to be correlated partly with the duration of action and potency of the particular drug. For example, heroin has a relatively short duration of action and is associated with a rapid onset of withdrawal symptoms of great intensity and a moderately rapid decline of symptoms. Methadone, on the other hand, has a relatively long duration of action and has a slower onset of withdrawal symptoms which are comparatively mild but protracted over a longer period of time. The symptoms of opiate withdrawal when intensity and duration are not considered are remarkably similar when any of the narcotic analgesics are withdrawn. In the fol-

lowing example of sequence and symptoms, morphine is used as a prototype:

<i>Hour After Last Dose</i>	<i>Signs and Symptoms</i>
8-16	Increasingly nervous, restless and anxious; frequent yawning; profuse sweating, lacrimation and rhinorrhea. These symptoms increase in intensity for the first 24 hours.
24	After 24 hours, the pupils begin to dilate and recurring waves of "goose-flesh" begin to occur.
24-36	Severe twitching of the muscles, painful cramps of the abdomen and legs. All of the body fluids are released in increased amounts; vomiting and diarrhea may occur. Appetite is poor and sleep is impossible.
48	Basal metabolic rate rises sharply during the first 48 hours.
48-72	Temperature and blood sugar levels begin to rise.
72-96	Systolic and diastolic blood pressures and respiratory rate rise to a maximum.

Additional signs and symptoms include sneezing, ejaculation in men and orgasm in women, ketosis and dehydration and occasionally cardiovascular collapse. Laboratory changes in addition to a rise in blood sugar may include elevated 17-ketosteroids and white blood cell counts above 14,000 per cubic millimeter.

Subjective feelings of illness reach their peak in 48 to 72 hours after the last dose of opiate. Symptoms then gradually subside for the next five to ten days.

According to Jaffe, the intensity of the withdrawal symptoms is related not only to potency and duration of action of the opiate but to a limited extent on the dosage.

With opiate-like drugs, there is an upper limit to the degree of physical dependence, . . . increasing the daily dose in man beyond the equivalent of 500 mg. morphine does not significantly increase the severity of the withdrawal syndrome.

The reason for physical dependence is not at all certain. Two theories now most widely accepted are the following:

1. During chronic administration of morphine there is an increased rate of synthesis of catecholamines and the degree of excitation seen during withdrawal is directly related to the release of catecholamines.

2. Increased excitability which develops may be due to a denervation supersensitivity analogous to that which develops in peripheral structures surgical-

ly or pharmacologically deprived of normal nervous input.

The reader will note that both theories postulate a form of cellular adaptation that remains latent during the period of the drugs action but leads to a state of hyper-excitability which is unmasked by the removal of the drug.

Tolerance, another cardinal feature of opiate addiction, may be defined as a decreasing effect obtained from the same drug dosage over a period of time or conversely the need to increase the dosage of a drug to continue to obtain the desired pharmacologic effect. It develops rapidly and markedly to analgesia, euphoria, sedation, and respiratory depression and far less to itching, nausea, meiosis and spasmogenic effects on smooth muscle. More or less continued drug action is necessary for the development of tolerance.

Tolerance limits are not really known in man. Patients have been known to inject up to five grams (78 grains) of morphine sulfate within 24 hours without developing significant toxic symptoms.

Psychiatric Aspects of Opiate Addiction

Psychological dependence, also known as emotional dependence and habituation, may be defined as an addicting property of opiates which allows individuals to satisfy particular emotional needs which for various reasons are not being satisfied.

Three broad areas of formulation have been proposed by Wikler and Rasor in an attempt to study the etiological features of drug addiction. These authors, as well as many others, base this classification on the assumption that drug addiction itself is not a disease but rather a manifestation or symptom of an individual's personality difficulties.

I. Symptomatological Formulation:

1. neurotic—these are the individuals who seek relief from anxieties.
2. psychopaths—these are those who seek elation and euphoria.
3. "normal"—this group is sometimes known as medical addicts, that is, people who have become accidentally addicted because of the frequent use of narcotics. According to Cecil and Loeb, this segment of the addict population accounts for less than 5 per cent.
4. psychotic—these seek to relieve depressive feelings.

II. Psychoanalytical Formulation:

This formulation postulates the arrest of psychosexual development. Absence of the father figure or the presence of an overindulgent mother who is inconsistent in her affection or rejection may allow oral cravings to become paramount and interest in genital pleasure to

cease to develop. These frustrations may be relieved by euphoria. Since the illegal use of narcotics is condemned in our society the very act of using the drugs may be an expression of hostility.

The self-administration of drugs, particularly by the parenteral route, is associated with erotic fantasies of various sorts—masturbatory, incestual, castrative, etc., of a highly symbolic nature.

III. Pharmacodynamic Formulation:

No pre-addiction impulse to use drugs is postulated in this formulation. The introduction to the drugs is usually quite accidental.

Two general types of drugs are included in the narcotics group. These are classified according to the type of behavior usually observed in persons addicted to these drugs.

1. Opium group—These people tend to be quiet and postpone all activity including antisocial activity.
2. Other group—The action of the drugs in this group resemble the effects of alcohol. Drugs of this group include cocaine, marijuana, and possibly peyote. Those drugs of this group tend to act to release repressed tendencies and to create disturbing and antisocial behavior in those who are basically antisocial.

Reichard aptly sums up the importance of the etiological approach to drug addiction in the following quotation:

We must never forget that if the poppy plant or marijuana had never been grown, if alcohol had never been manufactured, and if the various drugs used by other types of addicts had never been discovered or synthesized, these people would still be problems to someone. Addition to drugs merely complicates and obscures the basic problem of somatopsychic illness. When we can approach objectively the study and treatment of the basic personality defect, the prevention and cure of narcotic drug addiction will be simplified.

Methadone Withdrawal Therapy

Sigmund Freud was one of the first physicians to make use of the principle of drug therapy in the withdrawal of opiates. In 1884, when he was making a detailed study of the physiologic effects of cocaine, he was especially impressed by its action on the central nervous system and used it to wean one of his colleagues from morphine. He was successful in his attempt but at the same time produced the first known cocaine addict of modern times. Various other drugs have been used since then, but all were quite ineffective until the development of methadone.

Unlike addiction to alcohol, sedatives, barbiturates, and certain tranquilizers, sudden withdrawal

from opiates, even without substitution therapy, produces no delirium or convulsions. Although abrupt withdrawal, sometimes known as "cold turkey," is not particularly dangerous in most people, symptoms may become very distressing and in many cases the doctor-patient relationship would suffer if no substitution therapy were instituted. Abrupt withdrawal in those suffering from medical disorders such as peptic ulcer, ulcerative colitis, cirrhosis of the liver, severe hypertension, congestive heart failure, anginal syndrome, pneumonia, bronchial asthma, rheumatoid arthritis, hepatitis, epilepsy, and diabetes mellitus may be quite harmful. The possibility of cardiovascular collapse has already been mentioned.

Methadone is a synthetic analgesic drug which chemically is not related to morphine. The pharmacologic effects, however, closely resemble those of morphine. Methadone is a narcotic and has the addicting potential of any of the opiates. Even though the physical dependence in man appears to be quite mild, this does not exempt it from being abused by drug users. Some addicts have even preferred the euphoric effects of methadone to those of morphine or heroin.

Methadone has two primary useful effects in the therapy of opiate addiction. First it relieves narcotic hunger primarily because it too is a narcotic analgesic pharmacologically similar to the other opiates and secondly because it blocks the euphoric effects of an average dose of heroin or morphine.

Jaffe explains the mechanism of action of methadone on the basis of cross-dependence:

If a long acting drug such as methadone is substituted over several days for morphine, abrupt discontinuation produces a withdrawal syndrome characteristic of the long acting drug rather than that of morphine. . . . This phenomenon is the basis for the substitution treatment of physical dependence.

After tolerance has occurred, the absence of euphoria reduces the temptation to abuse the drug and the tolerance protects against accidental overdosage. In other words, methadone in a state of sufficient tolerance blocks not only the narcotic effects of opiate type drugs in general but also may block the narcotic effects of methadone itself.

The dosage of methadone is dependent upon the previous addicting dosage of the opiate. On a substitution basis one milligram of methadone is equivalent to three to four milligrams of morphine, one milligram of heroin, and one-half milligram of dihydromorphone. Dosage levels of methadone in opiate withdrawal and substitution therapy, however, are quite flexible and should be adjusted to the individual patient. Although most authors suggest that the required dosage of methadone is seldom greater than 30 to 40 milligrams per day, Dole *et al.* point out

that emotional stress or mild respiratory infections may bring about withdrawal symptoms in those who were previously maintained on adequate doses of methadone. Observations such as these suggest that the effectiveness of methadone can vary with changes in psychological and metabolic states.

When small doses of methadone in relation to the opiate tolerance are given orally, medical and psychometric tests reveal no signs of toxicity except constipation. If the doses are administered subcutaneously, local inflammation and induration of the tissues is a constant finding.

Methadone withdrawal therapy may be short term with discontinuance in seven to ten days or may be prolonged with maintenance doses being given for months to years. In a recent study on the comparison of the two types of therapy, Paulus and Halliday state that short term therapy is often effective in younger addicts who have not had a series of failures in attempting to discontinue the use of opiates. Long term "hard-core" addicts, on the other hand, seem to require long term maintenance medication.

Most of the recent work done by Dole and Nyswander in New York is some form of long term maintenance therapy. According to Dole, *et al.* in 1966, there were approximately 30,000 addicts in New York, 10,000 of whom were in jail for being addicts, and New York spent approximately \$25,000 a year to maintain an addict on the street when one considers theft, hospitalization, jail, social deterioration, abandonment of family, and welfare. In comparison, the cost of long term outpatient methadone maintenance therapy including data collection (clinical staff, police, and welfare), social services, and counseling is approximately \$2,000 per patient for the first year and \$1,000 per year thereafter. This cost is less than one fifth that required to confine an addict to the hospital. Nyswander and Dole state that in over 200 patients in a three-year trial, long term outpatient methadone maintenance program, 91 per cent of all patients have continued treatment and none have become readdicted to heroin.

Dole, *et al.* also point out the fact that, "A careful search of the literature has failed to disclose a single report in which withdrawal of drug and psychotherapy (alone) has enabled a significant fraction of the patients to return to the community and live as normal individuals."

In view of the above statistics and apparent success of outpatient long term methadone substitution therapy, it seems only reasonable to make a legitimate source of methadone available on larger scales as long as proper control, as that in the pilot program by Nyswander and Dole, is maintained.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 1300 Topeka Avenue, Topeka, Kansas 66612.

Clinical Cardiology

Aids to Cardiac Diagnosis From Examination of the Cervical Veins

NOBLE O. FOWLER, M.D.,* Cincinnati, Ohio

Method of Inspecting the Jugular Veins

THE PATIENT SHOULD lie so that the thorax is elevated approximately 30 degrees from horizontal, employing a bed or examining table which breaks at the hips, so that the thorax, abdomen, head and neck are elevated, while the lower extremities remain horizontal. The veins are best seen with artificial light directed tangentially across them in order to produce shadows.

Order of procedure: The external jugular veins and the internal jugular veins should be identified bilaterally. In many patients the external jugular veins are invisible. Important information may be missed if the internal jugular veins are not examined. If pulsations are not visible in the internal jugular veins, with the patient's thorax elevated to 30 degrees, then the thorax should be raised or lowered. The internal jugular veins lie deep to the sternomastoid muscles and are best recognized by their broad, undulating, and triphasic pulsations (Figure 1). The *a* wave is produced by atrial systole.

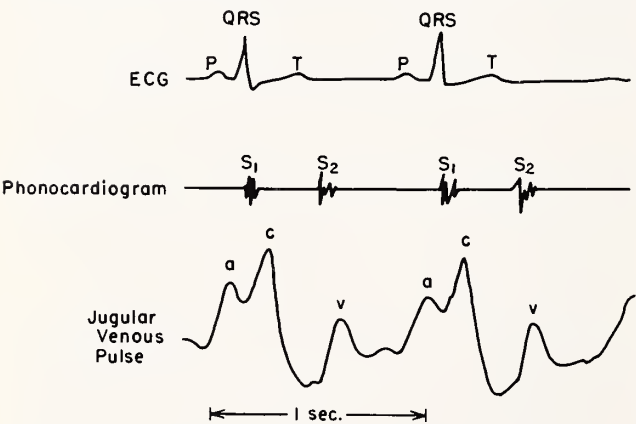


Figure 1. External recording of normal jugular venous pulse, demonstrating *a*, *c*, and *v* waves. For discussion, see text. From Fowler, N. O., *Cardiac Diagnosis*. Hoeber-Harper, 1968. By permission.

* From the Cardiac Research Laboratory, Department of Internal Medicine, University of Cincinnati College of Medicine, and Cincinnati General Hospital.

This article was prepared for the JOURNAL by the Kansas Heart Association.

It is the quick wave which just precedes the carotid pulse. The descending limb of the *a* wave is followed by a negative wave, the *x* wave, produced by atrial diastole (Figure 2). The *x* wave is followed by the second positive wave or *c* wave (Figure 1). The *c* wave results from bulging of the tricuspid valve into the right atrium as the right ventricle begins to contract; however, in the neck veins the *c* wave is considerably augmented by the underlying carotid pulse. The third positive wave of the jugular pulse is the *v* wave, which is produced by passive filling of the right atrium (Figure 1). The descent of the *v* wave is referred to as the *y* descent (Figure 2), inscribed as the tricuspid valve opens and blood flows into the right atrium.

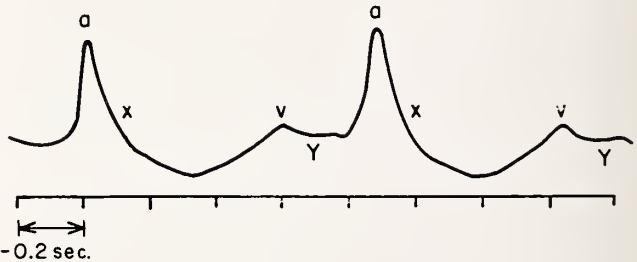


Figure 2. External recording of jugular venous pulse of a patient with tricuspid stenosis, showing large *a* wave and slow *y* descent. From Fowler, N. O., *Cardiac Diagnosis*. Hoeber-Harper, 1968. By permission.

When large *v* waves dominate the internal jugular pulse, as a result of right ventricular failure or tricuspid insufficiency, the venous pulse may be confused with the carotid pulse. The following procedures will distinguish the two. Moderate pressure with a tongue blade or the edge of the hand will obliterate the jugular but not the carotid pulse. If the cervical venous pressure is increased because of right heart failure, abdominal pressure with the hand, sustained for 30 seconds or so, will usually cause the venous pulse to become larger and to ascend higher in the neck (hepato-jugular reflux). With the Valsalva maneuver, the jugular veins usually become more distended but lose their pulsations; not so the carotid arteries. Usually the jugular venous pulses descend

lower in the neck during inspiration or when the patient's head is raised, but the carotid pulse is not so affected.

Information Obtained From Examination of the Jugular Veins

1. *Estimation of the systemic venous pressure.* When internal or external pulsations are more than two or three centimeters above the manubrium, one may be confident of elevation of systemic venous pressure, usually from right ventricular failure or constrictive pericarditis. A positive hepato-jugular reflux confirms this observation. The patient must continue to breathe normally and must not perform a Valsalva maneuver during the test. Bilateral non-pulsatile distention of the jugular veins, associated with a collateral venous pattern over the upper chest, suggests superior vena caval obstruction from aortic aneurysm, lymphoma, thymoma, or bronchogenic carcinoma.

2. *Distention of only the left jugular veins.* This usually indicates obstruction of the left innominate vein (kinked left innominate vein). This most commonly results from an elongated aortic arch associated with hypertension or atherosclerosis. However, on occasion, the left innominate vein is compressed by an aneurysm involving the aortic arch.

3. Prominent *a* waves in the jugular venous pulse with each cardiac cycle suggest forceful right atrial systole, related either to tricuspid obstruction or increased thickness of the right ventricular wall (decreased compliance). The following clinical causes may be considered:

a. Tricuspid stenosis: Usually there is accompanying rheumatic mitral disease. The *a* wave may ascend in the neck during inspiration: normally it descends during inspiration. There are usually shallow and slow *x* and *y* descents (*Figure 2*).

b. Congenital tricuspid atresia.

c. Right atrial myxoma.

d. Pulmonary valvular stenosis of moderate or severe degree. Prominent *a* waves are ordinarily not to be found in tetralogy of Fallot.

e. Congenital pulmonary atresia with intact ventricular septum.

f. Pulmonary hypertension. Mitral stenosis, lung disease, idiopathic or thromboembolic pulmonary hypertension, or pulmonary arterial branch stenosis may be the cause. Prominent *a* waves occasionally occur in Eisenmenger's syndrome.

g. First degree A-V block of sufficient degree that atrial systole occurs when the tricuspid valve is closed. Similarly, large *a* waves may occur during A-V nodal rhythm.

4. *Irregular giant a waves or cannon a waves.* These may occur with premature atrial or ventricular systoles, if atrial systole coincides with ventricular systole. Irregular cannon *a* waves also may occur with a regular ventricular rhythm when there is atrioventricular dissociation resulting from complete A-V block, A-V dissociation by interference or paroxysmal ventricular tachycardia. With complete A-V block in adults, the ventricular rate is usually near 40 per minute and there is varying intensity of the first heart sound. With A-V dissociation by interference, the ventricular rate is usually between 60 and 110 per minute. With ventricular tachycardia, the ventricular rate is usually between 130 and 250 per minute. The atrial rate, as judged by the jugular *a* waves, is most often at the normal sinus rate of 60 to 100 per minute.

5. *Atrial flutter.* With this one may be able to detect small, rapid, regular oscillations which occur approximately 300 times per minute.

6. Prominent *c-v* waves, with obliteration of the *x* descent usually reflect tricuspid insufficiency. This sign is most pronounced in patients with rheumatic mitral disease and rheumatic tricuspid insufficiency; it may also occur with right heart failure.

7. The *y* descent is usually accentuated with constrictive pericarditis (diastolic collapse of Friedreich). Patients with constrictive pericarditis almost invariably display increased venous pressure. Some demonstrate increased jugular distention during inspiration (Kussmaul's sign). This sign may be positive in occasional patients with right ventricular failure, especially in those with restrictive cardiomyopathy.

AMA

CLINICAL CONVENTION

Denver, Colorado

November 30-December 3, 1969

Pre-convention Conference on
Peer Review—November 29

National Conference on Medical
Aspects of Sports—November 30

(See the October 20 issue of JAMA for
complete program.)

The President's Message

DOCTOR SHORTAGE

The one subject I have heard most on my trips to the council districts has been the shortage of physicians. The men in Pratt said they have not been able to recruit a new physician for 20 years. This is an attractive, aggressive town with a fine four-story hospital. And the situation is nearly the same in cities as well as the towns.

Much of the criticism has been aimed at the medical schools for not producing enough physicians and for not sufficiently orienting them towards private practice. Some of this criticism is probably valid but by no means does the blame lie entirely there. One of the major causes is our affluent society. There has been so much money available to institutions and schools that they have been able to pay salaries, which plus the 40-hour week, make these positions more attractive than private practice. Children's Mercy Hospital in Kansas City, Missouri, is a good example of the change from the time I took my residency there and the present. In the period from 1937-39, there was not a single full time physician on the staff, and only two part time with the rest volunteers. The superintendent was an R.N. and a good one. Now there are at least 15 to 20 full time physicians of which seven or eight are pediatricians who were practicing physicians in this area. I don't blame them; sometimes it looks tempting to me. But somebody has to take care of the kids on the outside whose parents are willing and able to pay for that care.

This situation can be multiplied by the hundreds of other institutions now with funds to bid for doctors. Another depression (Lord forbid) would probably redistribute these doctors in a hurry. When they could not make a living with the 40-hour week jobs, we would have plenty of competition all over the state.



LELAND SPEER, M.D.

President



Editorial COMMENT



Where Will It End?

PAUL B. JARRETT, M.D., *Phoenix, Arizona*

IN MICHIGAN, an appellate tribunal reversed a lower court which prohibited the plaintiff from using the defendant doctor as an expert witness *against* himself. The court said that, "a civil defendant has no protection against subjecting himself to liability. If his testimony will provide facts which will aid the court in arriving at a just decision, he has the duty to testify. Any loss to the sporting aspect of the adversary proceedings would be outweighed by the benefit to the judicial system." The courts therefore make quite a distinction between a murderer or rapist and a physician on trial for malpractice. The criminal is prohibited from testifying against himself.

The time-worn and flimsy excuse for liberalizing rules of evidence and new methods for proving malpractice is the "conspiracy of silence." This seems to mean that if a physician reviews the evidence and doesn't find a departure from the standard of care and cannot therefore testify that malpractice existed, he is a "conspirator" against the patient who is praying for an award. It simply is not true that every law suit against a doctor resulted from malpractice. If a physician has done nothing wrong, why should the plaintiff's attorneys become so irate because other physicians refuse to testify that he has?

There has been no dearth of suits against doctors in recent years, and every case has produced physicians who testified in behalf of the plaintiff. Where is the conspiracy of silence?

The "locality rule" has virtually been eliminated by the courts. In the past, the plaintiff had to estab-

lish that the defendant physician departed from the standard of practice in the community in which the doctor practiced. The theory now imposed is that because of modern transportation, communication, text books, TV medical education, postgraduate courses, medical literature and meetings, even the "similar community" ruling is a thing of the past. A small community without a resident radiologist, a pathologist who visits twice a week, no intensive care unit, no anesthesiologist (perhaps a colleague who does the best he can in anesthesia in emergencies), no coronary care unit, no respiratory care unit, no interns or residents, no facilities for blood gases, no cardiologist, internist, pediatrician, allergist and so on, certainly does not give the small town doctor the same resources or ability to handle difficult and serious cases. It isn't the "wives" who are driving the doctors out of the small towns. It is the courts who hold the county practitioner now to the same standard of excellence as the physicians in the large centers with unlimited consultative and other facilities.

This and the doctrine of *res ipsa loquitur*, uninformed consent, recovery for mental suffering, the statute of limitations running from the time of discovery and some more permissive rulings, are in the opinion of many, as ridiculous as the recent ruling that unions have a vested interest in limiting production and it is therefore proper to fine union members for exceeding their quota.

Many professional liability carriers have withdrawn from the malpractice field. Some insurance companies will not write policies covering physicians who do any operative procedures, as a recent medical magazine article pointed out, a doctor makes thousands of life and death decisions in the course of his

Reprinted with permission from the Arizona Medical Association from pages 586 and 587 of the July 1969 issue of *Arizona Medicine*.

professional lifetime, yet if he makes one wrong decision, he may lose all he has worked a lifetime to acquire plus his professional reputation, and be unable to obtain liability insurance thereafter.

The physician shortage becomes more and more acute. Even so there is talk of re-licensing examinations at three year intervals and the training of sub-doctors. Who will accept the legal responsibility for these physician-aides? Certainly the number of M.D.s will be reduced by re-licensing, and early retirement because of the inability to obtain malpractice insurance or excessive premiums. Many excellent surgical assistants are not helping on cases they do not originate because this puts them in the category for classification of a surgical specialist with current premiums of \$1,280 per year, and no end to the premium rise in sight.

I have heard, but have not confirmed the statement that plastic surgeons in Florida cannot obtain malpractice insurance at any price. Some physicians who have had claims against them are rated up to above \$4,000 a year in premiums, and you are familiar with the mass cancellations of malpractice policies in Utah and Alaska. Midwest Mutual cancelled all of their policy holders as of February 23. Aetna is no longer writing surgical specialists, and there is no doubt whatsoever about the courts practicing medicine. The high cost of medical care is greatly contributed to by the need for the physician to protect himself. It is questionable whether this makes for a higher standard of practice.

In Canada and Britain it is both unethical and illegal for a lawyer to accept a case on a contingency basis, and they have very few "nuisance" suits. Forty per cent of a recent award for \$1,500,000 is a pretty hefty fee for a few weeks work. What do you get for saving a life? What became of making the plaintiff pay court costs if he loses a suit? Recently a malpractice action in Flagstaff took five weeks in trial. What did this cost the taxpayers? How much important business was delayed as a result of the interminable presentation of the plaintiff's lawyer in a case that in many opinions should never have been permitted to come to court?

Will the day come when a doctor will be forced to say, "I'd like to help you, but I just can't take the risk!"

Where will it all end?

We have great untapped sources of brainpower housed in handicapped bodies. Employers should realize that if an individual is properly trained and properly placed, his physical handicap will not be a job handicap. . . . Mrs. Jayne B. Spain, President, Alvey-Ferguson Operations, Hewitt-Robins, Inc.

THE MARK WATERS STORY

DRAMATIC WARNING ABOUT SMOKING FILMED
FOR COMMUNITY GROUPS; TRUE STORY
STARS RICHARD BOONE

An anti-smoking movie based on a dramatic true story has been filmed for free-loan use by community groups and employee audiences.

"The Mark Waters Story" recreates the heart-breaking but heroic drama of a newspaperman who wrote his own obituary while dying of lung cancer. His by-lined story reached millions of readers throughout the world when it was reprinted by *Reader's Digest* and other publications.

It began with this memorable statement: "Cigarettes were the death of me."

Richard Boone, the star of screen and television ("Palladin"), volunteered his services to direct the film and play the role of Mark Waters.

"He really believed in this story," says the film's executive producer, Cliff Eblen. "His total immersion in his role was fantastic. He wasn't just acting. He was Mark Waters." During the filming of a farewell scene, Boone broke up and the crew had to stop shooting.

So strong is the emotional impact of the film, keyed by Boone's thoroughly believable performance, that all promotional literature carries the line "not appropriate for children."

The 25½-minute 16mm-sound color film is available on free loan to such groups as PTA's, churches, men's and women's clubs, hospital auxiliaries, health associations and employee audiences.

Waters began his obituary five days before his death and made final corrections only ten hours before the end. It appeared in his newspaper, the *Honolulu Star-Bulletin*, on the day he died: February 1, 1966.

"Whether this story will stop anyone from smoking," he wrote, "I don't know. I doubt it."

But Mark Waters had no idea how far-reaching his inspiration would be.

The film was produced by educational television station KHET in Honolulu. The Hawaiian setting became an integral part of the film, with Waters' tragic illness counterpointed against his idyllic life in the islands.

KHET was assisted by funds from the U. S. Public Health Service and the Hawaiian Inter-Agency Council on Smoking and Health. The Public Health Service is also sponsoring the distribution.

Requests for playdates of "The Mark Waters Story" (starting October 1, 1969) may be sent to Modern Talking Picture Service, 2323 New Hyde Park Road, New Hyde Park, New York 11040.

The Council

Report of Meeting Held September 28, 1969

A meeting of the Council was held on Sunday, September 28, 1969, at the Ramada Inn in Topeka, beginning at 11:00 a.m.

Present were Leland Speer, President, K. L. Graham, C. M. Lessenden, Jr., J. C. Mitchell, L. R. Pyle, W. J. Reals, T. F. Taylor and E. D. Yoder; *Councillors and Alternates*: Val Converse, J. G. Lee, Jr., H. F. Coulter, W. G. Rinehart, G. L. Mowry, R. H. O'Donnell, R. F. Conard, S. S. Daehnke, S. C. McCrae, R. M. Glover, M. R. Knapp, F. P. Wolff, Vale Page, M. O. Steffen, W. E. McAllaster, J. J. Marchbanks, G. W. Fields, and D. G. Laury; *Commission Chairmen*: M. L. Belot, G. D. Marshall, G. R. Maser and E. J. Ryan; *Committee Chairmen*: A. W. Beahm, L. E. Becker, C. V. Black, J. A. Budetti, E. G. Campbell, W. M. Cole, M. R. Dietz, H. H. Jones, R. C. Knappenberger, R. O. Nelson, William Nice, L. W. Reynolds, L. N. Speer and E. F. Steichen.

Also present were O. R. Clark, editor of the JOURNAL, T. P. Butcher, G. F. Gsell, J. L. Morgan, and L. S. Nelson. Also present were J. D. Walker, University of Kansas Medical School; E. D. Lyman, State Board of Health; Mrs. Gerald L. Mowry, representing KaMPAC; Mr. Richard Williams and Mr. Gary Beauchamp, representing SAMA; Mr. R. E. Selbach, Executive Secretary, Shawnee County Medical Society; Mr. Sam Barham and Mr. Proctor Redd, Kansas Blue Shield; Mr. David Weihaupt, AMA Field Representative; Mr. R. G. Swenson and Mr. Oliver E. Ebel.

The meeting was called to order by the president and the minutes of the Council meeting held last May were read by the secretary. The minutes were approved as read.

Dr. Yoder announced that Dr. Richard Greer, Topeka, had been appointed by the Selective Service to be the medical consultant for Kansas. He also read a letter from the Dickinson County Medical Society, stating that their charter had been destroyed by fire and requesting a new one. This was approved.

Dr. Clark announced that the JOURNAL has an opportunity to participate in a program offered to the state medical journals, through Russell Johns Associates, which would guarantee the JOURNAL a monthly income of \$400 or more from the selling of classified advertising through this national company. He stated that many of the advertisements would list locations in other states and he asked for an expression from the Council on whether this should

be accepted. The motion was made and seconded that this should be left to the judgment of the Editorial Board.

Mr. Swenson reported that Blue Shield had not given their opinion on whether they would participate in the deferred compensation program.

Dr. Speer spoke of SAMA and of the AMA contribution to the Kansas Chapter for its public service project. He then introduced the two SAMA representatives present at the meeting. Mr. Williams, representing SAMA, stated they would like the Society to encourage the medical school to permit students to study with practicing physicians in the state for periods of one to three months.

Dr. Pyle advised the Council that the Kansas delegates to the AMA House of Delegates introduced a resolution to the effect that a state should be advised before AMA supports service projects within a state. He stated this resolution was supported by the AMA trustees and was adopted.

The commission chairmen then reported on their meetings held earlier in the day and reviewed the various projects their committees planned to undertake during the year.

The following resolution relating to cancer registry was presented by the Commission for Scientific Study:

Cancer Registry

WHEREAS, A proposal has been drafted to be presented to the Advisory Committee of Kansas Regional Medical Planning, at their meeting October 4, 1969, requesting \$100,000 for a computer based regional cancer registry; and

WHEREAS, Only five (5) hospitals in Kansas have agreed to join K.U. at their own expense; and

WHEREAS, Practicing physicians in community hospitals throughout the state would greatly benefit from the education on feedback of local case experience; and

WHEREAS, Our Committee on Cancer under the Scientific Commission has been developing a comprehensive state-wide program for two years; be it therefore

Resolved, That the Council of the Kansas Medical Society requests the Director of Kansas RMP not approve the present proposed plan for a medical center oriented computer based cancer registry.

After discussion, the motion was made and seconded that the resolution be tabled. The motion was then made and seconded that the resolution be pre-

(Continued on page 473)



Personalities—IN KANSAS MEDICINE

Clarence A. Gripkey, Kansas City, has retired from private practice and has accepted an appointment as a full-time physician with the government in Kansas City, Missouri.

Philip H. Hostetter, Manhattan, attended the national convention of the American Academy of General Practice in Philadelphia in September.

After serving two years with the Army, Russell Bradley has returned to Emporia to resume his medical practice.

In September, George E. Burket, Kingman, attended a meeting of the examination committee of the American Board of Family Practice in Chicago.

Bill L. Braden, Wamego, recently attended an extensive course in postgraduate pediatrics at Harvard Medical School.

R. R. Snook, McLouth, has been elected to the advisory board of the Jefferson County Home Health Agency. He replaces F. W. Huston, Winchester, who has served on the board for the past two years.

William J. Reals, Wichita, has been elected vice president of the College of American Pathologists. Russell J. Eilers, Kansas City, was named to the Board of Governors of the College to fill the unexpired term created by Dr. Reals' election as vice president.

The first Certificate of Recognition for outstanding community service in public health was presented to

Donald R. Pierce by Floyd Beelman, chairman of the Topeka-Shawnee County Advisory Board of Health. This special recognition award honors Dr. Pierce for 14 years of voluntary service on the City-County Board of Health.

Donald D. Decker, Halstead, succeeds Dwight Lawson, Topeka, as president of the Kansas Heart Association, Inc. Other officers elected at the 20th annual meeting of the Association held in Topeka in September include Alex Mitchell, Lawrence, president-elect, and John F. Coyle, vice president. David Lukens, Hutchinson, Jesse Rising, Kansas City, John Shellito, Wichita, and Dr. Lawson are members of the executive committee.

John C. Mull, Hutchinson, is the new president of the Reno County Chapter of the University of Kansas Alumni Association.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Richard M. Chubb, M.D.
1227 Military Avenue
Baxter Springs, Kansas
66713

Jared J. Grantham, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Clifford W. Gurney, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

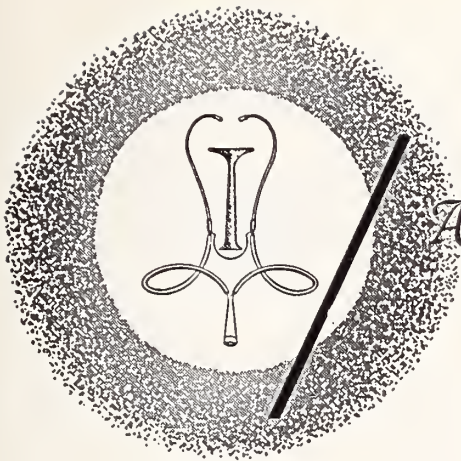
Harry D. Haas, M.D.
5330 West 100th Street
Shawnee Mission, Kansas
66207

F. Charles Hiller, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

DeWayne D. Hofer, M.D.
St. Joseph Hospital
Concordia, Kansas 66901

David E. Nelson, M.D.
4714 West 63rd Street
Prairie Village, Kansas
66208

Frank J. Pischke, M.D.
480 New Brotherhood
Building
Kansas City, Kansas 66101



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The American Board of Family Practice announces that it will give its first examination for certification in various centers throughout the United States. The examination will be over a two-day period on February 28-March 1, 1970. Information regarding the examination and eligibility for the examination can be obtained by writing:

Nicholas J. Pisacano, M.D., Secretary
American Board of Family Practice, Inc.
University of Kentucky Medical Center
Annex #2, Room 229
Lexington, Kentucky 40506

DECEMBER

- Dec. 4-6 Nebraska State Obstetrical and Gynecological Society, New Frontier Hotel, Las Vegas. For information, write Joseph C. Scott, Jr., M.D., 42nd and Dewey Streets, Omaha 68105.
- Dec. 5-6 Interim scientific session, American Rheumatism Association, Pioneer Hotel, Tucson. For information, write Miss Margaret Walsh, ARA Exec. Secretary, Arthritis Foundation, 1212 Ave. of the Americas, New York, New York 10036.
- Dec. 6-11 American Academy of Dermatology (28th annual meeting), The Americana Hotel, Bal Harbour, Florida. Write: Frederick A. J. Kingery, M.D., 2250 N. W. Flanders, Portland, Oregon 97210.

POSTGRADUATE EDUCATION

University of Kansas:

- Dec. 10-12 *Gynecology and Obstetrics*
Feb. 9-10 *Cardiac Auscultation*

Feb. 25 *The Handicapped Child (Great Bend)*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

- Jan. 18-24 *General Practice Review*
Feb. 2-6 *High Risk Infant Care (limited)*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Denver Children's Hospital:

- Dec. 12 *Pediatric Endocrinology*

For further information regarding the above continuing education courses contact L. Joseph Butterfield, M.D., Department of Continuing Education, Children's Hospital, 1056 E. 19th Ave., Denver.

University of Nebraska:

- Dec. 8-12 *Obstetrics and Gynecology Traineeship*
Jan. 22-23 *Computers in Medical Practice*

For further information write: Department of Postgraduate Education, University of Nebraska Medical Center, 42nd and Dewey Avenue, Omaha 68105.

University of Iowa:

- Dec. 4-5 *Obstetrics and Gynecology*
Dec. 5 *Cardiac and Respiratory Disease Conference*

For further information write Director of Postgraduate Education, University of Iowa College of Medicine, 100 Westlawn, Iowa City 52240.

The Month in Washington

(Prepared by the Washington office of the American Medical Association.)

Health, Education and Welfare Secretary Robert Finch has asked a special Task Force on medicaid to examine and make recommendations on proposals for a sweeping national health program.

The Task Force, headed by Walter J. McNerney, president of the Blue Cross Association, is scheduled to issue a report about the first of the year.

After referring to a proposal for universal health insurance endorsed by many governors at the National Governors' Conference, Finch told McNerney in a letter:

"I would like specifically to request that the Task Force consider, along with its other deliberations on medicaid and related programs, what directions and initiatives you feel the HEW Department should pursue in this area."

According to McNerney, one phase of the study would include the extension of medicare to persons of all ages, roughly the national compulsory health plan backed by Walter Reuther of the United Auto Workers and his Committee of 100 for National Health Insurance.

McNerney, however, also said that all types of mass plans would be studied, including the health insurance tax credit proposal endorsed by the American Medical Association.

The rapidly rising costs of medicare and medicaid have brought the issue to the forefront. The Administration said older people who enter the hospital after January 1 will have to pay for an additional \$8 of their hospital bills due to the higher costs. The increase is required by law.

The benefit cutback results from an adjustment of the portion of the hospital bill for which a medicare beneficiary is responsible if these costs have risen substantially.

After a two-year study, Sen. Abraham Ribicoff (D., Conn.), former HEW Secretary, said he's reached the conclusion the federal health effort "is a planless conglomeration of programs administered by more than a score of agencies and departments."

Federal health spending "instead of supporting programs to provide for the health of the people . . . is maintaining a cumbersome, disjointed bureaucracy that even key government officials have difficulty managing," he told the Senate.

"Instead of eliminating problems (they) may be adding to factors such as rising costs, limited ac-

cess to care and the fragmented organization of health services."

"There are so many programs administered in such bureaucratic confusion that no one—not the HEW Department, not the Bureau of the Budget nor any private organization was able to tell the subcommittee even how many programs there are."

The American Medical Association told Congress drug dependent persons should be treated as patients rather than criminals.

In testimony before the Senate Juvenile Delinquency Subcommittee, Henry Brill, M.D., chairman of the AMA's Committee on Alcoholism and Drug Dependence, said physicians are concerned over legislation before the Subcommittee proposing harsher penalties for persons unlawfully possessing drugs for their personal use.

"Mere possession for personal use of depressant and stimulant drugs having a legitimate medical usage should not constitute an offense," Dr. Brill said. "The degree of social hazard and the reasons for having the drug should be taken into account."

"With respect to the entire section on offenses and penalties, we propose an amendment to direct courts to appoint a panel of medical experts in each case where a drug abuser is brought to trial on a charge of illegal possession and where, in the court's opinion, medical treatment may be indicated. The panel would make a determination as to whether the defendant has a medical problem associated with his abuse of drugs—a physical or psychological disability or drug dependence.

"If medical treatment is indicated, the panel would recommend to the court the type of treatment needed—that is, general—medical or psychiatric care; in-patient hospitalization or clinical treatment; group therapy; half-way house etc. If medical treatment is not indicated, or if measures in addition to medical treatment are needed, the court would then consider the non-medical handling of the case."

Under the proposed AMA changes, the HEW Department, rather than the Justice Department, would control the official classification of drugs, and the research and public education programs in the field. Control provisions would focus on manufacturers and distributors, rather than on physicians.

"We recommend that as a matter of public policy Congress explicitly charge the HEW Department

(Continued on page 473)



Book REVIEWS

PHYSICAL DIAGNOSIS: THE HISTORY AND EXAMINATION OF THE PATIENT by John A. Prior and Jack S. Silberstein (3rd Edition). C. V. Mosby Company, St. Louis, 1969. 435 pages illustrated. \$10.50.

This third edition of *Physical Diagnosis*, written by John A. Prior, M.D. and Jack Silverstein, M.D., comes from the Ohio State University College of Medicine.

There is quite a lengthy introduction at the beginning of the book, explaining important and salient features of the history and general inspection. The remainder of the book is divided into the general review of physical examination for all of the systems.

An outstanding feature of the book is the strong emphasis on the technique of examination. Common and interesting pathological findings involving each of the systems are discussed.

This edition contains many new techniques and procedures as well as an adequate physio-pathological correlation.

Of particular interest is a special chapter on the mental examination and even though it is well written and informative, it could and probably will be further developed in subsequent editions.

The book is very informative and, I believe, would be an excellent review for the practitioner of any field.—R.D.N.

ESSENTIALS OF GASTROENTEROLOGY by J. Ned Smith, Jr. C. V. Mosby Company, St. Louis, 1969. 326 pages illustrated. \$14.75.

This is a very well organized and complete book on gastroenterologic diseases. Much of the detail

found in some of the larger textbooks is omitted; however, brief mention is made of nearly all aspects of the various diseases. It is very easy to read and very informative, particularly as a ready and quick handy reference or guide in the treatment of disease. There are good illustrations and an excellent bibliography at the end of each chapter. The author writes in a very precise manner and makes his points in a rather one, two, three order.

I would strongly recommend this book for anyone in the practice of internal medicine or gastroenterology as a ready reference in their library. I am sure that it will be used frequently in the daily treatment and care of gastroenterologic problems.—A.V.M.

POST-TRAUMATIC PULMONARY INSUFFICIENCY by Francis D. Moore, et al. W. B. Saunders Company, Philadelphia, 1969. 234 pages illustrated. \$12.50.

This book is very well written and easy to read. It discusses several patients with severe injuries and severe illnesses which required extensive pulmonary management. Five fatalities and then five survivals were discussed in great detail. Then the clinical and physiological changes were explained.

The different aspects of pathogenesis, methods of preventing as well as treating pulmonary problems were considered.

This book contains much interesting material and is very useful in the present day of frequent trauma which often produces severe pulmonary distress.—W.N.



JOSEPH G. EVANS, M.D.

Dr. Joseph G. Evans, 63, died at his home in Kansas City, Kansas, on September 22, 1969.

Born on September 3, 1906, in Kansas City, Kansas, he was a lifelong resident of that city. He received his medical degree from the University of Kansas School of Medicine in 1934. Dr. Evans was active in civic and community affairs. He had served as vice president of the Chamber of Commerce and was chairman of the health and safety committee of the Boy Scouts, and a member of the Executive board of the Kaw council. He had been a Kansas City, Kansas, police surgeon for 21 years.

Dr. Evans is survived by his wife and three sons. The family requests memorial contributions be made to Providence Hospital, Kansas City, Kansas.

J. WARREN MANLEY, M.D.

Dr. J. Warren Manley, 62, Kansas City, Kansas, died at St. Margaret Hospital on September 25, 1969.

Born May 31, 1907, near Auburn, he lived in Topeka until after his graduation from Washburn University. After teaching school for several years, he entered the University of Kansas School of Medicine and received his doctor of medicine degree in 1940. He served in the Army during World War II and after completing his tour of duty returned to Kansas City, Kansas, and practiced medicine there for 21 years. At the time of his death, Dr. Manley was serving the Society as an alternate delegate to the American Medical Association.

Surviving Dr. Manley are his wife and son. The family suggests memorial contributions to charities.

DONALD E. RAY, M.D.

Dr. Donald E. Ray, Chanute, died on September 24, 1969, at the age of 54.

He was born March 21, 1915, at Overbrook and moved to Chanute from Kansas City, Missouri, 16 years ago. After serving in the Navy during World War II, he entered the University of Kansas School of Medicine and received his medical degree in 1953. Upon completion of his internship, he moved to Chanute and joined the Ashley Clinic there. He was chief of the medical staff of the Neosho Memorial Hospital and a member of several medical, civic and fraternal organizations.

Dr. Ray is survived by his wife, two daughters and two sons.

HARRY A. WEST, M.D.

Dr. Harry A. West, 80, Yates Center, died on August 30, 1969, in the Allen County Hospital, Iola.

Dr. West was born on August 7, 1889, at Yates Center and was graduated from the University of Kansas School of Medicine in 1917. Following his release from the Army after World War I, he began his medical practice in Douglass, Kansas, moving to Yates Center in 1929. He was interested in the affairs of his community and was a member of several civic organizations.

Survivors include his wife and daughter. Memorial contributions may be made to the Woodson County Heart Association.

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS
Division of Disease Prevention & Control—Registration & Health Statistics Services
Kansas Morbidity Incidence
Summary of Cases Reported in August, 1969 and 1968

Diseases	August			January-August Inclusive		
	1969	1968	5-Year Median 1965-1969	1969	1968	5-Year Median 1965-1969
Amebiasis	—	6	1	1	11	8
Aseptic meningitis	1	1	1	8	5	3
Brucellosis	—	—	—	1	2	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	2	1	7	7	6	11
Encephalitis, post-infect.	—	1	—	1	9	2
Gonorrhea	431	577	307	3,305	2,856	2,616
Hepatitis, infectious	16	27	16	195	269	195
Measles (Rubeola)	—	—	*	7	8	*
Meningococcal meningitis	—	3	—	14	24	13
Mumps	—	1	*	93	706	*
Pertussis	—	1	1	—	4	7
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	6	3	2
Rubella (German Measles)	—	1	*	38	116	*
Salmonellosis	14	42	31	106	193	173
Scarlet fever	—	1	—	23	28	52
Shigellosis	5	22	8	49	62	49
Streptococcal infections	134	89	134	1,723	1,698	1,723
Syphilis	112	158	112	1,328	817	800
Tinea capitis	1	7	4	31	37	37
Tuberculosis	19	24	24	144	154	168
Tularemia	—	2	—	3	3	3
Typhoid fever	—	—	—	—	1	1

* Statistics not available for 5-year median.

MOSQUITO-BORNE ENCEPHALITIS

Despite the presence of an abundant mosquito population, very little human morbidity due to primary infectious encephalitis has been reported in Kansas through September. This is reflected in the totals above, which are below the five-year medians for this disease category. However, the probability of arthropod-borne encephalitis continues through the early fall months, and in past years case reports have been received through November.

During the current season, *Culex tarsalis*, the mosquito species most commonly associated with the vectoring of St. Louis and Western Equine encephalitis in Kansas, has been readily identified in the north central and northwest portions of the state. Eight of the weekly trapping reports received between August 8 and September 22 indicate catches of *C. tarsalis* totaling between 100 and 300 specimens. However, sentinel flocks of initially sero-

negative chickens have not "converted" to the extent experienced in this program last year. At present only one flock (Northwest Kansas) indicates significant development of antibody titer for WEE, and none of the flocks show significant development of antibodies against SLE.

Veterinarians from 16 counties have reported a total of 20 equine cases of arthropod-borne encephalitis. No pattern is present in this reporting, other than that there are no cases reported from the southwest area of the state.

Physicians are again urged to report all suspect encephalitis cases, subject to correction of report following laboratory confirmation. In addition, specimens from suspect cases of human viral encephalitis should be sent as follows:

- 1. *Acute serum*—(minimum of 5 cc separated from cells) aseptically collected and mailed to the State Health Department Laboratory.

2. *Convalescent serum*—(minimum of 5 cc separated from cells) aseptically collected two to three weeks after the acute specimen and mailed to the State Health Department Laboratory.

3. *Stool specimen*—This specimen is extremely important in differentiating polio, Coxsackie, and ECHO virus infections, and should be acquired in the acute stage, frozen, and packed in dry ice, if possible, in order to keep it frozen until it reaches the laboratory.

Report of Council Meeting

(Continued from page 465)

sented for informational purposes to the medical representatives on the RMP Advisory Committee.

A motion was made and seconded that a list of the physicians in each council district who had not paid their building assessment be given to the councilor of each district so that he could personally contact those physicians.

The president then called upon the treasurer to report on the budget. Dr. Lessenden read a summary of the income and expenses of the Society. After discussion, the motion was made and seconded that the dues for 1970 be raised by \$25. This motion carried and the dues for 1970 will be \$75.

Discussing Title XIX, Dr. Speer announced that Welfare is considering six different possibilities because of budgetary problems. They could reduce eligible services, especially in the area of the medical-only category. They are exploring the possibility of insuring the program through a commercial company and are also considering whether to ask the legislature for an emergency appropriation. Dr. Pyle stated that a financial crisis appears because the deficit incurred last year was taken out of the current fiscal budget. In addition, the current budget was insufficient because of an unexpected increase in medical-only cases. Medical-only cannot be eliminated except by legislative action.

Mr. Barham stated that he had written Welfare offering to submit a proposal both as fiscal intermediary and, if desired, as carrier. However, he did not want to go further until he knew what the Society wanted Blue Shield to do. During the discussion that followed some stated that any insurance carrier would have to establish a fee schedule. In conclusion, no one recommended Society position on this question.

The Executive Secretary spoke of several items of legislation which will appear in the 1970 legislature and stated that additional information would be sent to the membership as these developed.

There being no further business, the meeting adjourned at 3:00 p.m.

The Month in Washington

(Continued from page 468)

with the major responsibility for research on all aspects of drug abuse and dependence other than enforcement," said Dr. Brill.

The AMA supports provisions in the legislation "which would allow researchers to withhold names of subjects, and to handle controlled drugs without prosecution, especially on state and local levels, has served to hamper needed research in the past."

The American Medical Association supported legislation to require foreign medical graduates trained in this country to spend two years of residence in their native land or land of previous residence before becoming eligible to apply for U. S. citizenship.

C. H. William Ruhe, M.D., director of the AMA's Division of Medical Education, said the measure would strengthen the Exchange Visitor Program. However, Dr. Ruhe suggested that the provision be strengthened to require that citizens of less-developed nations return to their home countries rather than their latest nation of residence. He cited the example of citizens of India who come to the United States from England.

"If such participants are required merely to return to England there will be no alleviation of the brain drain from India," he told the House Judiciary Subcommittee on Immigration.

Denver '69

AMA

Clinical Convention

November 30-December 3

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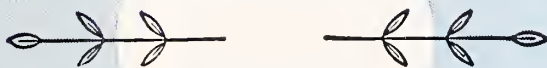
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DECEMBER
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VOL LXX
NO XII

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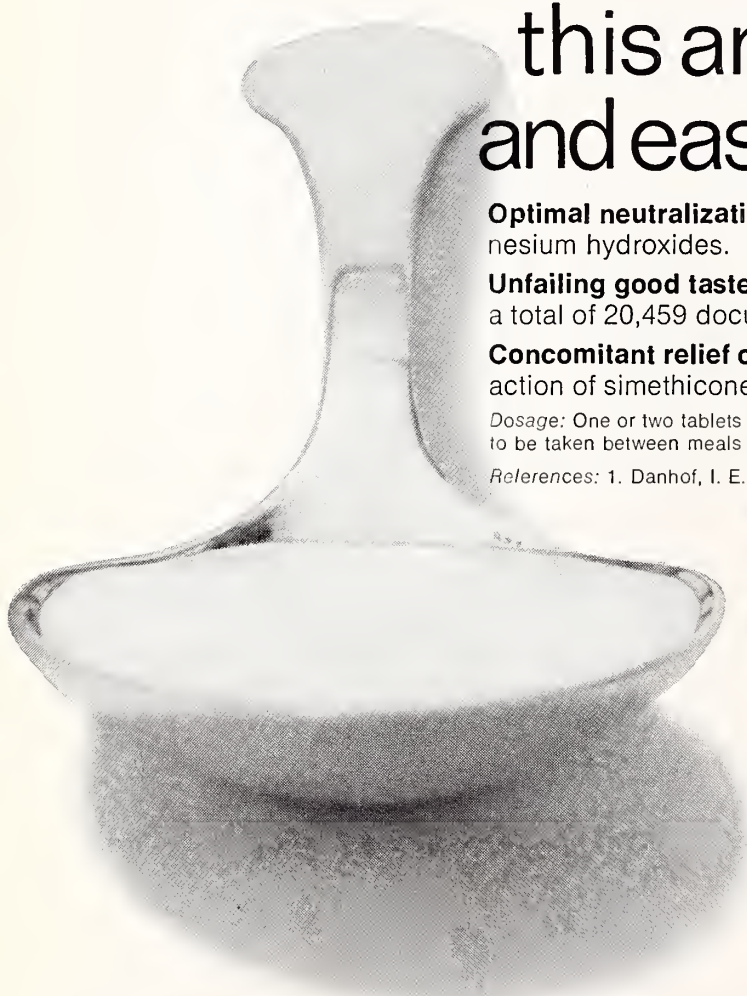
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References: 1. Danhof, I. E.: Report on file. 2. Hoon, J. R.: Arch. Surg. 93:467 (Sept.) 1966.

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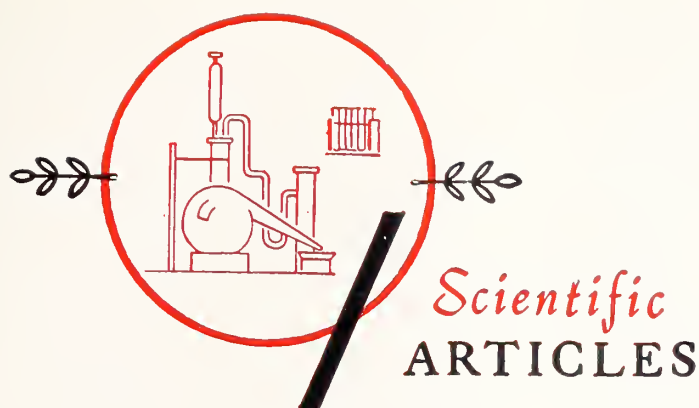
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Transposition

Diagnosis and Operative Management of Corrected Transposition of the Great Vessels

HELEN STARKE, M.D., MARVIN I. DUNN, M.D., and
WILLIAM A. REED, M.D.,* *Kansas City*

Introduction

CORRECTED TRANSPOSITION of the great vessels is generally associated with other anomalies. Surgical therapy is difficult and associated with high mortality. Consideration of the fundamental morphological derangements and an accurate assessment of associated lesions is necessary if correction or palliation is contemplated. This report describes a patient who illustrates many of the problems which may be encountered.

Case Summary

This 33-year-old female was first seen at the University of Kansas Medical Center in February 1955 at which time she was 22 years old. This emergency room visit was precipitated by an episode of tachycardia, syncope, and non-radiating substernal chest pain. At this time an electrocardiogram showed a supraventricular tachycardia with a rate of 200. This arrhythmia terminated immediately following the intravenous administration of 0.5 milligram of ouabain. She had experienced many similar episodes of tachycardia, some lasting as long as three hours.

From the Department of Medicine and the Department of Surgery, University of Kansas Medical Center, Kansas City, Kansas.

Supported in part by NIH Grant 5 T1 HEO5670-05.

A patient with corrected transposition of the great vessels and situs inversus, who underwent surgical correction of ventricular septal defect and pulmonary stenosis, is presented. Additional complicating features in this case included tricuspid valve deformity (pentacuspid valve with anomalous insertion of chordae tendineae), cleft in the mitral valve, a second ventricular septal defect in the muscular septum as well as the one in the membranous septum, anomalous redundant valve-like tissue in relation to the membranous septum on the venous ventricular side, frequent bouts of supraventricular tachycardia and the presence of WPW syndrome, and first degree A-V block.

Corrective surgery for ventricular septal defect with corrected transposition of the great vessels is associated with a high mortality and many complications. An appreciation of the anatomic derangements, functional impairments, and electrophysiologic abnormalities is necessary for more complete understanding of the physiologic disturbances and surgical correction.

A heart murmur was detected when she was a young child and she stated she had always been more short of breath than her peers. She had two pregnancies which terminated in spontaneous abortion at five and eight months.

She was 68 inches tall and weighed 140 pounds. The blood pressure usually ranged from 90 to 120 systolic and 50 to 70 diastolic when she was in normal sinus rhythm. It was often 80 to 90 systolic and 50 to 80 diastolic with paroxysmal atrial tachycardia. The cardiac apex was to the right of the sternum just within the midclavicular line in the fifth intercostal space. A right ventricular heave was present in the right parasternal region. A systolic thrill was felt in the second right interspace. S_1 was normal. S_2 was widely split and fixed; P_2 was diminished; an S_4 was present. A Grade V/VI harsh systolic ejection murmur with late systolic accentuation was heard in the second right interspace. The liver was palpable one to three centimeters below the left costal margin. No edema was noted.

Laboratory data, including blood counts, urine examinations and serological tests for syphilis were normal. Arm to tongue circulation time was 22 seconds and arm to lung circulation time was 15 seconds.

Chest x-ray and fluoroscopy showed a large globular heart centrally placed (*Figure 1*). Situs inversus totalis was noted. The aorta arose from the right side of the cardiac silhouette. The pulmonary arteries

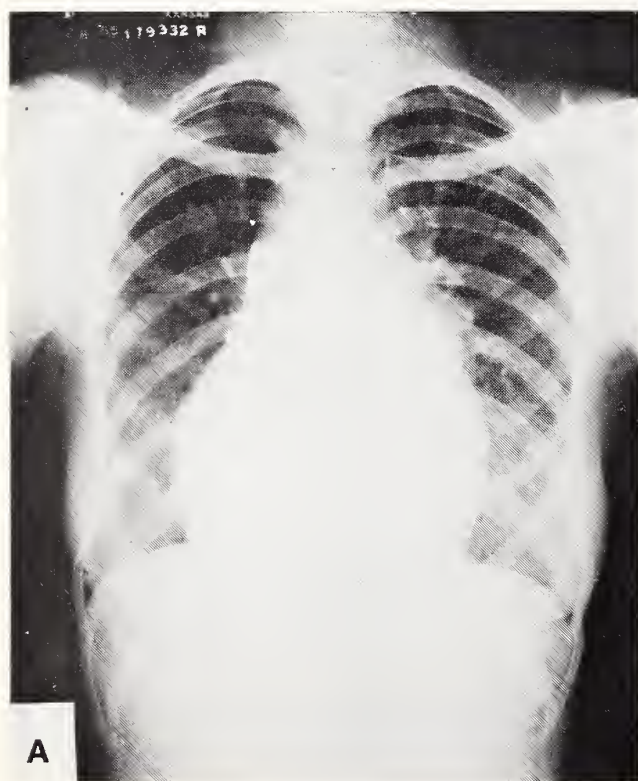
were large and bounding. The pulmonary vascular markings were increased.

Electrocardiograms obtained when the rhythm was normal demonstrated dextrocardia with negative P waves in leads I and aVL and positive P waves in the other limb leads. P waves were broad and notched in the limb leads and upright across the entire pericardium. First degree A-V block was present. A qR complex in leads I and aVL and rS in aVR were compatible with right axis deviation for dextrocardia. A qR complex was present in V_5 and V_6 and an RS complex in V_5R and V_6R . This was interpreted as right ventricular hypertrophy (*Figure 2*). Wolff-Parkinson-White complexes were observed intermittently (*Figure 3*).

Phonocardiograms confirmed the previously described auscultatory findings. The A_2 - P_2 interval was .08 seconds. Third and fourth heart sounds were recorded. The carotid tracing had normal contour with a TETc of .27 seconds. Right ventricular systole was .36 seconds for a rate of 60.

Bouts of tachycardia were often difficult to control. Vagal maneuvers, ouabain, cedilanid, quinidine, pronestyl, various vasopressor substances including neosynephrine, vasoxyl, aramine and levophed were used to treat the arrhythmia. Frank pulmonary edema and hypotension were frequent complications. Prophylactic use of digitalis and quinidine was not successful.

At cardiac catheterization in July 1965, the su-



Figures 1a and 1b. PA and right lateral chest film showing the aorta arising on the right with a large globular centrally placed heart.

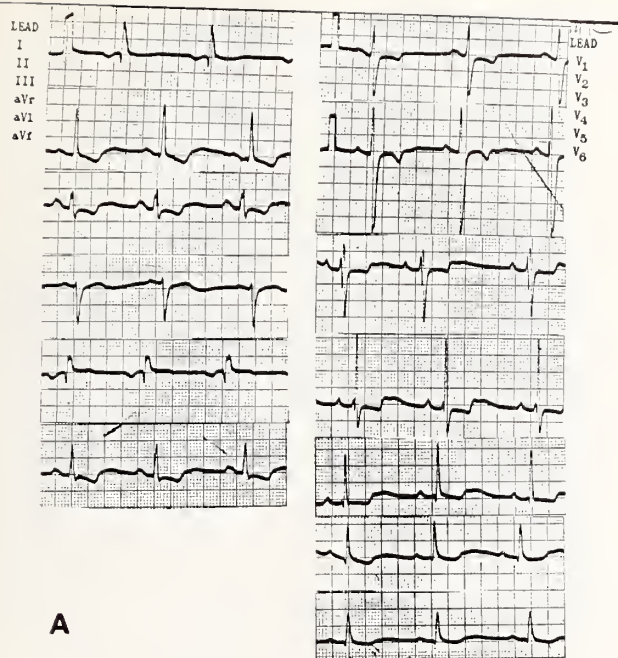


Figure 2a. Standard lead electrocardiogram.

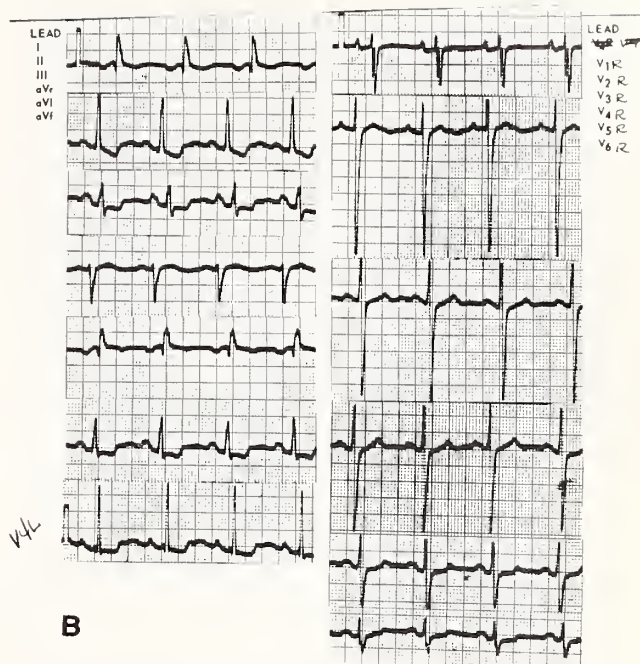


Figure 2b. Right sided precordial leads.

perior vena cava was to the left of the midline and the venous atrium was along the left border of the cardiac silhouette. The pulmonary outflow tract was in the midline just to the left of the aorta. The ascending aorta, the arch, and descending aorta were on the right. The systemic ventricle was also on the right.

Ventricular pressures were essentially balanced (130-150 millimeters hemoglobin systolic). The pulmonary artery could not be entered. There was no gradient across the aortic valve. Venous atrial mean pressure was 8 millimeters hemoglobin. Systemic arterial blood was 97 per cent saturated. Dye curves indicated a systemic to venous shunt at the ventricular level, but no step-up of oxygen content occurred. Angiograms of the pulmonary outflow tract revealed pulmonary valvular stenosis of moderate degree with poststenotic dilatation of the pulmonary artery.

On November 19, 1965, operation was done through a median sternotomy. The external appearance of the heart was that of corrected transposition with mirror image dextrocardia. Cannulation of the caeve was done and following establishment of satisfactory extracorporeal circulation with a disc oxygenator, a pulmonary arteriotomy was made and a pulmonary valvotomy performed. Digital exploration of the venous ventricle revealed a defect which was inaccessible from a venous ventriculotomy because a coronary artery passed over the outflow portion of the ventricle and the ventricular septal defect was located posteriorly. A longitudinal ventriculotomy was made in the systemic ventricle (anatomic right

ventricle) and a 1.5 x 2 centimeter ventricular septal defect was noted posterior and superior to the crista supraventricularis. A redundant portion of membranous material was seen to arise from the posterior margin of the defect projecting into the venous ventricle. This material was utilized to close the defect by direct suture with 2-0 mersilene.

The postoperative course was complicated by frequent bouts of supraventricular tachycardia, post-pericardiotomy syndrome and later by left- and right-sided heart failure which became more difficult to control.

Cardiac catheterization February 1, 1966, showed a left to right shunt. The pulmonary to systemic flow rate was 2.4 to 1. There was no pulmonary stenosis. Reoperation was suggested but not accepted by the patient, who died April 25, 1966, in severe uncontrolled congestive heart failure.

Autopsy Findings

At autopsy situs inversus involving all thoracic and abdominal viscera was found. The heart showed corrected transposition of the great vessels (*Figures 4, 5, 6*). The venae caeve entered the anatomic and functional right atrium which, because of situs inversus was on the left. This atrium connected with an anatomic left ventricle through a bicuspid A-V valve which was in continuity with the pulmonary valve which had been adequately opened.

The pulmonary veins drained into an anatomic and functional left atrium which was on the right. This atrium connected with an anatomic right ventricle through a pentacuspoid A-V valve which was

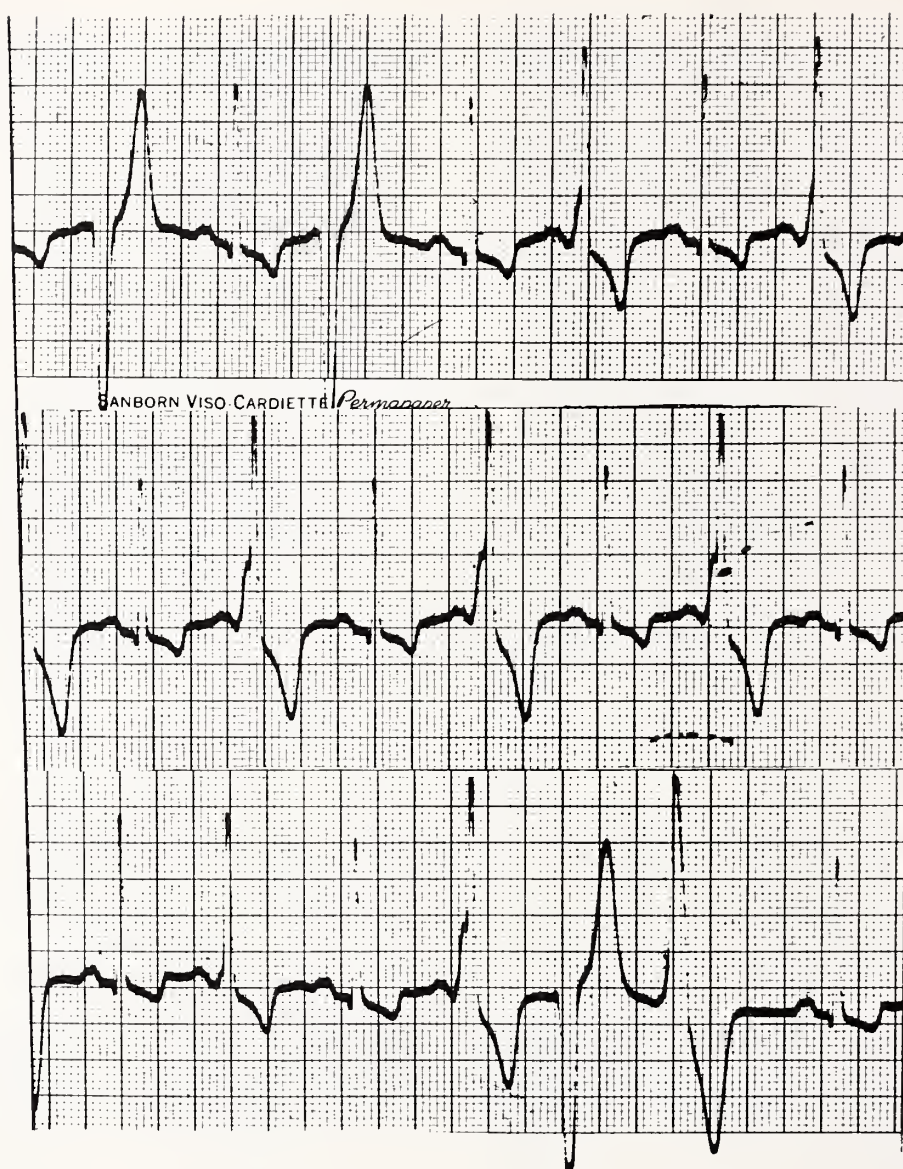


Figure 3. Illustration of WPW syndrome complexes.

separated from the aortic valve by the crista supra-ventricularis. The aortic valve was normal.

The aorta arose from the right side anterior to the pulmonary artery which was medially placed. The arch of the aorta and descending aorta were on the right side.

A ventricular septal defect in the membranous septum was partially closed. Accessory valve-like tissue adjoining the bicuspid venous ventricular A-V valve (which had a partial cleft) but possibly representing accessory membranous septal tissue had been used to close the defect. The defect was a one centimeter slit beneath the crista supraventricularis. A second defect was present in the muscular ventri-

cular septum. This was apparent only from the anatomic left ventricular side because of the very heavily trabeculated anatomic right ventricle. This measured one centimeter in diameter.

The right ventricular wall was 2.5 centimeters thick and the left ventricular wall 4 centimeters thick. Massive dilatation of the heart and findings of left- and right-sided heart failure were noted. In addition, there were multiple accessory spleens and each lung had three lobes.

The coronary arteries arose from the anteriorly placed aorta with the main left coronary artery passing anterior to the base of the pulmonary artery with normal distribution over the left (venous)

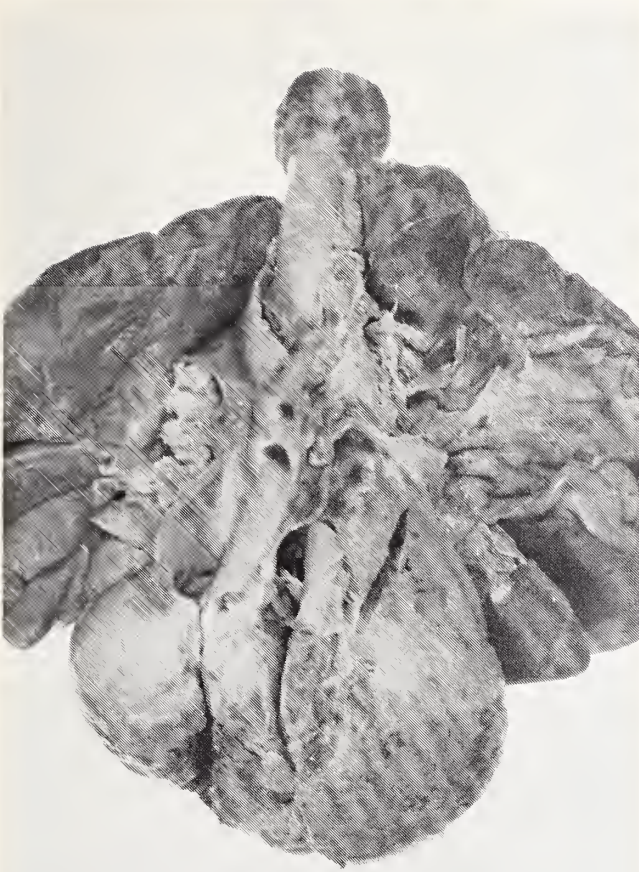


Figure 4. Anterior view of specimen taken at autopsy. The anatomic left ventricle is on the patient's left side emptying into the large pulmonary artery positioned to the left of the aorta. The aorta arises from the anatomic right ventricle somewhat anterior to the pulmonary artery and descends on the right.

ventricle. The right coronary artery passed to the right and posteriorly in the A-V groove.

Discussion

GROSS ANATOMICAL CONSIDERATIONS OF CORRECTED TRANSPOSITION OF THE GREAT VESSELS WITH VENTRICULAR INVERSION

The two fundamental derangements of this malformation, transposition of the ascending aorta and pulmonary trunk and inversion of the ventricles, were present in this patient. Although physiological correction of transposition of the great vessels may be achieved in several ways, ventricular inversion is by far the most frequently encountered.¹⁻³ The arterial ventricle ejects blood into the aorta which arises anteriorly.⁴ When corrected, transposition of the great vessels occurs in total situs inversus, the atria and their various connections remain inverted, but the A-V valves, ventricles, ventricular septum, great vessels and coronary arteries (and ventricular conduction system) are reinverted.



Figure 5. Anatomic and functional left atrium opened through the pentacuspid A-V valve into the anatomic right (functional left) ventricle.

CONDUCTION SYSTEM

Normally the upper edge of the ventricular septum is attached to the floor of the right atrium just to the right of the atrial septum allowing part of the right atrium to be related to the left ventricle. In the usual form of corrected transposition of the great vessels, the ventricular septum joins the floor of the atria to the left of the atrial septum so that part of the left atrium is now related to the venous ventricle. Thus, the course of the conduction system

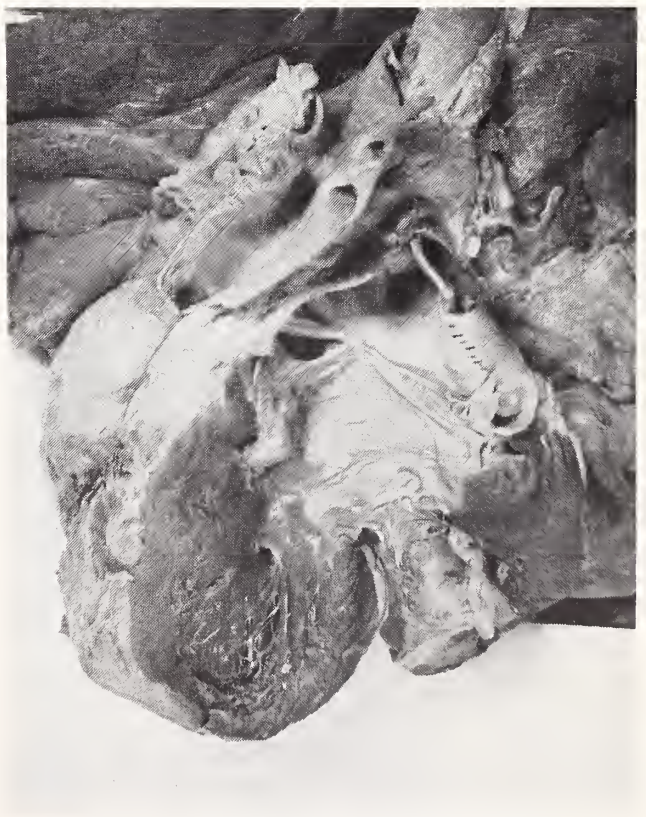


Figure 6. The pulmonary artery is dilated.

is modified. The A-V node and proximal His bundle remain in the floor of the right atrium, but the distal part of the main bundle and branches are inverted with the septum. The anatomic left bundle branch is in the right (venous) side, while the main bundle and anatomic right bundle branch are in the left (systemic) side of the ventricular septum. The main bundle has a longer course to reach the top of the ventricular septum (*Figure 7*).⁵

CORONARY CIRCULATION

The coronary arteries share in the ventricular inversion. In a situs solitus heart with corrected transposition of the great vessels, the left coronary artery arises from the right anterior aortic sinus, proceeds anteriorly across the base of the pulmonary artery and gives rise to mirror image anterior descending and circumflex branches.^{1, 6} The coronary artery, which arises from the left anterior aortic sinus, provides a marginal and posterior descending branch and has a mirror image of a normal right coronary artery (*Figure 8*).

MALFORMATIONS OF 3 LEAFLET A-V VALVE

Our patient had a pentacuspid A-V valve on the systemic side (instead of the expected anatomic tricuspid valve). Anomalous insertion of the chordae tendineae was noted. A partial cleft in the venous

(anatomic mitral) A-V valve was also present. Insufficiency of the former valve is easily overlooked clinically because of the more obvious ventricular septal defect.

Malformations of the three leaflet systemic A-V valve in corrected transposition are common. Schiebeler *et al.* states that lesions of this valve are so common that they should be considered almost a basic part of this pathological entity.⁴ An Ebstein-type of abnormality, abnormal chordal insertions, cleft leaflets, stenosis and atresia are some of the associated valve defects.⁷⁻¹⁰ Anomalies of the three leaflet arterial A-V valve more frequently produce incompetence.¹¹

The pansystolic murmur in this case was attributed to the ventricular septal defect. The fact that amyl nitrite diminished the pansystolic murmur was attributed to the presence of the ventricular septal defect, but insufficiency of the systemic A-V valve could have produced this finding. Clues that might have suggested dysfunction of the tricuspid valve were the presence of left atrial enlargement as indicated in the EKG, the presence of WPW complexes and bouts of supraventricular tachycardia which are so common in tricuspid valve abnormalities (especially Ebstein's anomaly).

EKG ABNORMALITIES

Electrocardiographic abnormalities in our patient

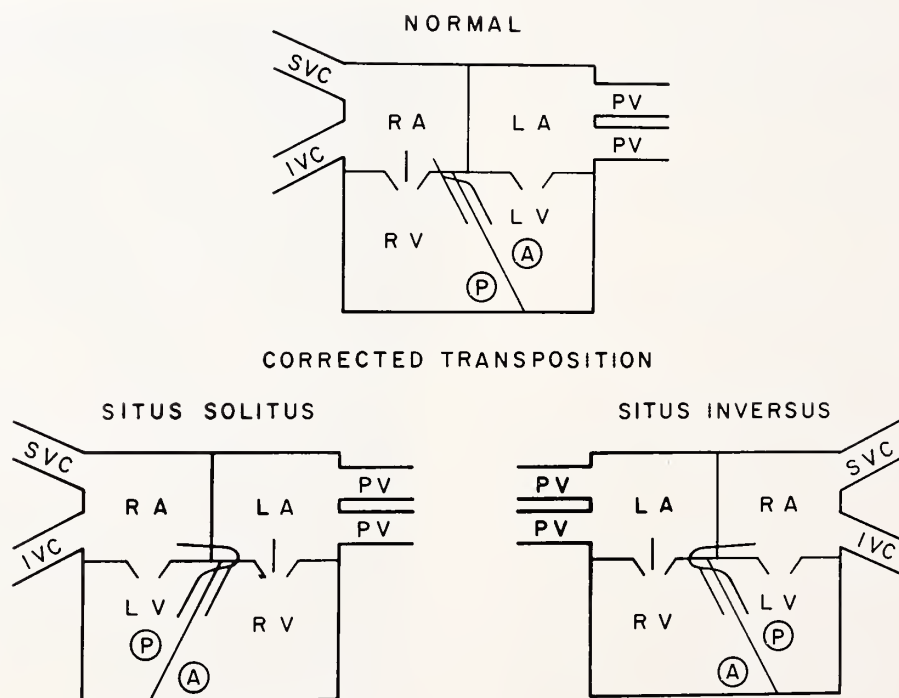


Figure 7. Diagram illustrating the arterial and venous connections to the anatomical heart chambers and the relative relationship of the chambers to each other. The A-V valve between the L-A and R-V is tricuspid. The course of the conduction pathway is indicated.

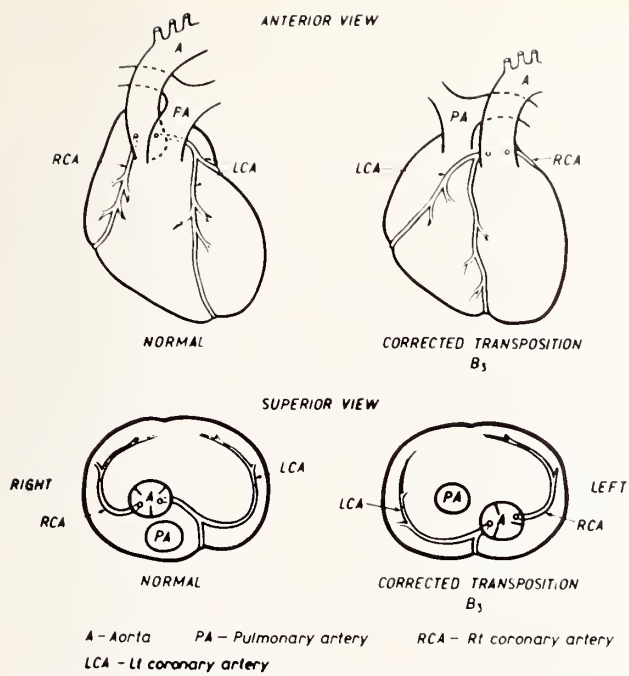


Figure 8. Coronary arteries in corrected transposition. This diagram must be placed in mirror image in our patient who has situs inversus.

include dextrocardia, right axis deviation, bi-atrial enlargement, first degree A-V block, intermittent WPW complexes, and paroxysmal atrial tachycardia. A qR complex was present in V_5 and V_6 , and RS in V_5R and V_6R were indicative of right ventricular hypertrophy.

The inversion of the conduction system and presence of situs inversus explain the qR configuration in V_5 and V_6 and absence of Q in V_5R and V_6R in our patient. In the situs solitus heart an initial Q wave is present in V_1 in 60 per cent and there is absent Q wave in V_6 in 90 per cent. Right ventricular hypertrophy may be difficult to diagnose because of the more posterior and inferior location of the ventricle.¹²

P waves are almost invariably abnormal, indicating left atrial enlargement, right atrial enlargement or bi-atrial enlargement in more than 90 per cent.

Varying degrees of A-V block have been noted in most patients, probably because the His bundle is more susceptible to damage due to its long aberrant course.^{4, 6, 7, 11, 13-18}

X-RAY FINDINGS

In corrected transposition of the great vessels in the situs solitus heart, the left upper border of the cardiovascular silhouette represents the ascending aorta so that the triple convexity produced by aortic knob, main pulmonary artery and left ventricle is replaced by a double convexity (ascending aorta and systemic ventricle).^{19, 20}

Absence of a distinct main pulmonary artery in an x-ray exhibiting prominence of the main branches of the pulmonary artery should arouse suspicion of a diagnosis of corrected transposition of the great vessels and ventricular septal defect. In infants, a globular heart with narrow pedicle is frequent as in transposition of the great vessels. Again, mirror image must be superimposed to evaluate corrected transposition of the great vessels in the situs inversus situation.

SITUS INVERSUS HEART

Corrected transposition of the great vessels occurs much more commonly in situs solitus heart than in situs inversus heart. Schiebler *et al.* reported two examples in their series of 33 cases of corrected transposition of the great vessels and were able to find nine previous reports, six of which were prior to 1910 and were incompletely described.⁴ We are aware of four subsequent reports prior to our own.^{17, 21-23}

ACCESSORY VALVE TISSUE

Accessory valve tissue has been reported to cause subpulmonary stenosis in corrected transposition of the great vessels.²³ The appearance of the tissue in case 3 of Levy's series resembles the ballooned tissue found in our case. Whether or not this contributed to the obstruction in our case is not clear (pulmonary valvular stenosis was present). It was this tissue that was utilized to close the membranous defect in the ventricular septum.

CARDIAC CATHETERIZATION AND ANGIO-CARDIOGRAPHY

Cardiac catheterization is often difficult in patients with corrected transposition and situs inversus because of the likelihood of development of complete A-V dissociation or supraventricular arrhythmias, the more cephalad location of the venous A-V valve, and the sharp turn required in rounding the anterior leaflet of the venous A-V valve to manipulate the catheter into the pulmonary artery. In view of the fact that systemic A-V valve abnormalities are so common, angiographic evaluation of the systemic ventricle should be performed to evaluate valve competency. Angiographic visualization of the transposed great vessels and morphological identification of the two ventricles is necessary for accurate diagnosis.

OPERATIVE PROBLEMS

Surgical correction of ventricular septal defect associated with corrected transposition of the great vessels has been associated with a 50 per cent mortality. If the ventriculotomy is attempted through the ve-

nous ventricle, the course of the coronary artery over the anterior surface limits the incision and there is risk of damage to this coronary artery or its branches. The incision is further limited by the attachment of the anterior papillary muscle of the bicuspid (mitral) valve which may be detached, resulting in death.²²

The anomalous course of the conduction system makes the danger of complete heart block great.⁵ Since the main bundle is related to the anatomic right side of the ventricular septum, it should be less susceptible to damage with ventriculotomy into the venous ventricle unless sutures are taken through the septum to repair the ventricular septal defect. The only part of the conduction system related to the septal defect from the venous ventricle is the anatomic left bundle branch. The plane of the ventricular septum may make repair from the venous ventricle difficult, if not impossible. Conduction defects are probably best avoided by placement of sutures along the defect margin through a systemic ventriculotomy with the heart beating as a guide to avoid heart block. Incisions in the systemic ventricle wall heal and should not add significantly to morbidity. Successful closure of ventricular septal defect in corrected transposition of the great vessels by means of systemic ventriculotomy has been reported.^{24, 25} The production of complete heart block at surgery has been significantly frequent and the prognosis is poor in reports to date.²²

Patients with corrected transposition of the great vessels and ventricular septal defect have a better prognosis if pulmonary stenosis is associated. The danger, therefore, of attempted "total correction" of pulmonary stenosis and ventricular septal defect with corrected transposition may be additionally hazardous if the pulmonary stenosis is adequately corrected and the ventricular septal defect is incompletely closed. Total correction of tetralogy of Fallot with infundibular pulmonary stenosis is technically difficult because the subvalvular region is not easily accessible and because the coronary artery, which passes across the origin of the pulmonary artery, does not permit utilization of an out-flow patch. Palliative therapy using a Blalock or Potts systemic pulmonary artery anastomosis is well tolerated.²⁵

Conclusions

A patient with corrected transposition of the great vessels and situs inversus, who underwent surgical correction of ventricular septal defect and pulmonary stenosis, is presented. Additional complicating features in this case included tricuspid valve deformity (pentacuspid valve with anomalous insertion of chordae tendineae), cleft in the mitral valve, a

second ventricular septal defect in the muscular septum as well as the one in the membranous septum, anomalous redundant valve-like tissue in relation to the membranous septum on the venous ventricular side, frequent bouts of supraventricular tachycardia and the presence of WPW syndrome, and first degree A-V block.

Corrective surgery for ventricular septal defect with corrected transposition of the great vessels is associated with a high mortality and many complications. An appreciation of the anatomic derangements, functional impairments, and electrophysiologic abnormalities is necessary for more complete understanding of the physiologic disturbances and surgical correction.

References

1. Cardell, B. S.: Corrected transposition of the great vessels. *Brit. Heart J.* 18:186, 1956.
2. Shaher, R. M.: The syndromes of corrected transposition of the great vessels. *Brit. Heart J.* 25:431, 1963.
3. Shaher, R. M.: Complete and inverted transposition of the great vessels. *Brit. Heart J.* 26:51, 1964.
4. Schiebler, G., Edwards, J. E., Burchell, H. B., DuShane, J. W., Ongley, P. A., and Wood, E. H.: Congenital corrected transposition of the great vessels: A study of 33 cases. *Ped.* 27, Suppl. 5:851, 1961.
5. Lev, M., Licata, R. H., and May, R. C.: The conduction system in mixed levocardia with ventricular inversion (corrected transposition). *Circ.* 28:232, 1963.
6. Anderson, R. C., Lillehei, C. W., and Lester, R. G.: Corrected transposition of the great vessels: A review of 17 cases. *Ped.* 20:626, 1957.
7. Walmsley, T.: Transposition of ventricles and arterial stems. *J. Anat.* 65:528, 1931.
8. Sat, S.: Über die entwickelung der atrioventricularkappen und der pars membranacea unter berücksichtigung zugehöriger Herzmissbildungen. *Anat. Hefte.* 50:193, 1914.
9. Shaner, R., and Adams, J. W.: Corrected transposition of the heart of a ten month old infant. *Canad. J. A. J.* 64:64, 1951.
10. Shaner, R. F.: Complete and corrected transposition of the aorta, pulmonary artery and ventricles in pig embryos, and a case of corrected transposition in a child. *Amer. J. Anat.* 88:35, 1951.
11. Helmholz, H. F., Daugherty, G. W., and Edwards, J. E.: Cardiac clinics CSLV. Congenital mitral insufficiency in association with corrected transposition of the great vessels. *Proc. Staff Meet. Mayo Clinic* 31:82, 1956.
12. Gibbons, J., Donnelly, G. L., Harris, J. S., and Orgain, E. S.: Corrected transposition of the great vessels with pulmonary stenosis. *Circ.* 14:941, 1956.
13. Yater, W., Lyon, J. A., and McNabb, P. E.: Congenital heart block: Review and report of second case of complete heart block studied by serial sections through the conduction system. *JAMA* 100:1831, 1933.
14. Donoso, E., Braunwald, E., Jick, S., and Grishman, A.: Congenital heart block. *Amer. J. Med.* 20:869, 1956.
15. Walker, W. J., Cooley, D. A., McNamara, D. G., and Moser, R. H.: Corrected transposition of the great vessels, atrioventricular heart block, and ventricular septal defect. A clinical triad. *Circ.* 17:249, 1958.
16. Fontana, R. S., and Edwards, J. E.: *Congenital heart disease: A review of 357 cases studied pathologically.* Philadelphia, Saunders, p. 88, 1962.
17. Berry, W., Roberts, W. C., Morrow, A. G., and Braunwald, E.: Corrected transposition of the aorta and pulmonary trunk. *Amer. J. Med.* 36:35, 1964.

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Rabies in Kansas

A Report for 1967 and 1968

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IN OCTOBER 1968 a 13-year-old boy died in Kansas from rabies.⁵ This was the first human death since 1966 from a rabies virus infection contacted in the United States.⁴ During 1967 two deaths occurred in the United States following infection which originated in Africa.² In 1967 the possible exposure to rabies virus was illustrated by the recording of 4,609 cases of rabies in animals in the United States and the distribution of an estimated 566,596 doses of human rabies vaccine. In 1968 there were 3,612 cases of rabies in animals and an estimated 863,773 doses of human rabies vaccine distributed.³ The incidence of rabies in animals has been periodically reported by public health agencies, but a regional analysis of the significance of the incidence has seldom been disseminated to the practicing physician.

The knowledge of the laboratory confirmed rabies infection in animals is of unquestionable value. Of equal value is the type and number of animals in a specific geographical area which were examined and did not have rabies. This information can provide the physician with a basis for determination of treatment. The physician is then able to either initiate vigorous therapeutic measures or to allay unnecessary anxiety until completion of the laboratory examination.

This report concerns the incidence of laboratory confirmed rabies in animals, their location, and the type and total number of animals examined in Kansas for the years 1967 and 1968. In 1967 there were 109 cases of rabies detected in the examination of 1,548 submitted specimens. The 109 cases consisted of six different types of animals and involved 23 human exposures. During 1968 there were 52 cases diagnosed as rabies in 1,570 examined specimens. The 52 cases represented four types of animals and involved eight human exposures (*Table 1*).

Regional differences exist in rabies virus reservoir hosts. The skunk provides the greatest reservoir of rabies virus infection in Kansas. In Tennessee, the fox, and in Georgia, the raccoon are the animals most often found infected.^{2, 3}

The animals with rabies in Kansas were from 46

of 105 counties in 1967, and from 23 counties in 1968. This distribution was apparently related to population centers, with the increased probability of

Laboratory examination of animal specimens for rabies in Kansas revealed 109 positive cases in 1967 and 59 positive cases in 1968. The animals examined and found negative for rabies in 1967 and 1968 included 1,439 specimens (27 species) and 1,518 specimens (29 species), respectively. The incidence of rabies in 1967 (six species) and 1968 (four species), when evaluated as a per cent of the total specimens and species examined, reveals most human exposure to animal bites involves those species in which rabies is not reported in Kansas. A regional (Kansas) analysis of the incidence of rabies provides information on which the physician can base a therapeutic decision and allay unnecessary anxiety associated with a highly publicized and dreaded disease.

a laboratory investigation request, rather than any factor of endemic location (*Figure 1 and Figure 2*).

The significance of the incidence of rabies in the various types of animals in Kansas is further defined when evaluated as a per cent of the total specimens examined. Examination of the skunk specimens for the two-year period of this report revealed 58.7 per cent positive in 1967 and 45.2 per cent in 1968. This high incidence suggests the need for immediate antirabies treatment following exposure to this animal. The per cent of bovine specimens determined to be infected with rabies in 1967 (9.5%) and in 1968 (6.4%) should be noted when records indicate a high level of exposure to the farmer resulting from lay examination and treatment of these animals prior to professional medical assistance. The per cent of horses found positive for rabies virus in 1967 was not indicative of the incidence in this species, and was only a reflection of

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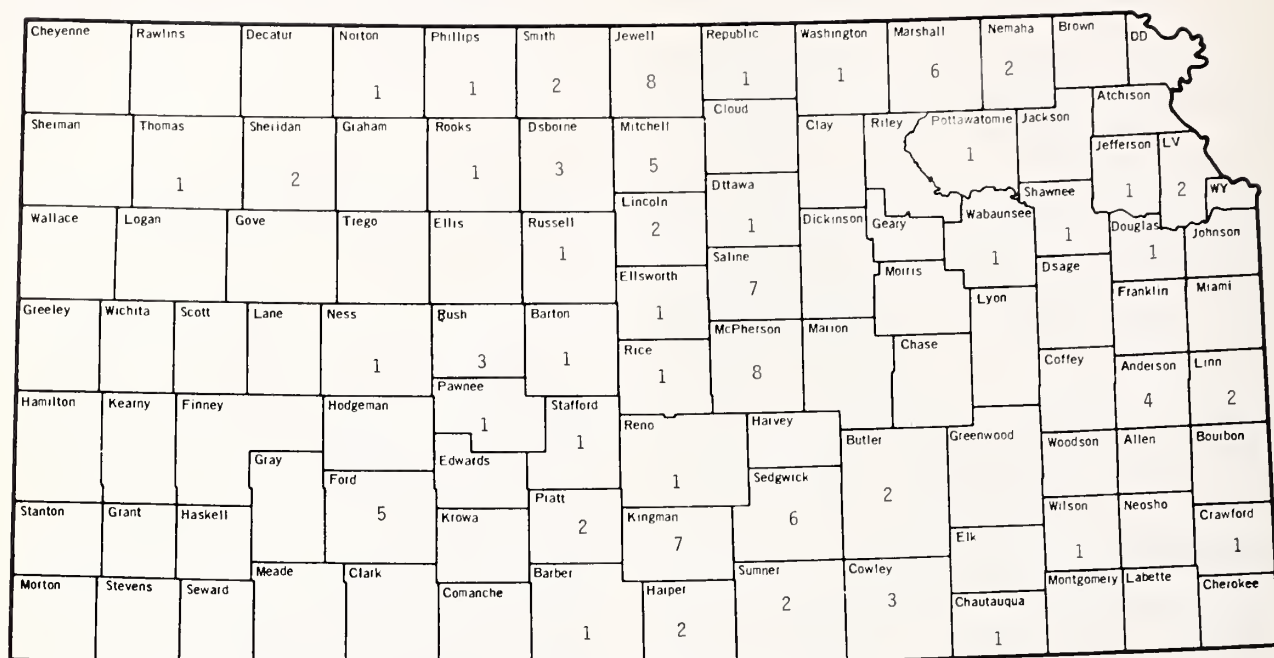


Figure 1. Location by county of the laboratory confirmed cases of rabies in Kansas in 1967.

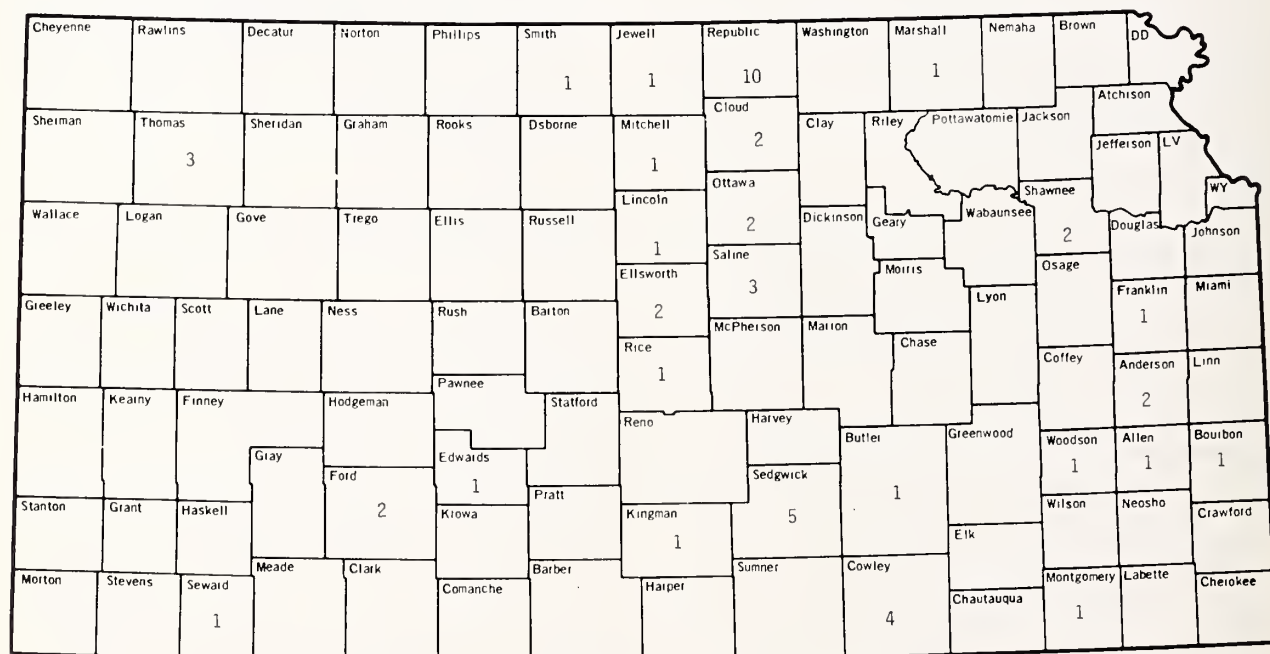


Figure 2. Location by county of the laboratory confirmed cases of rabies in Kansas in 1968.

TABLE 1
LABORATORY CONFIRMED RABIES IN ANIMALS IN KANSAS

<i>Species</i>	1967		1968	
	TOTAL NUMBER OF CASES	NUMBER WITH HUMAN EXPOSURE	TOTAL NUMBER OF CASES	NUMBER WITH HUMAN EXPOSURE
Skunk	91	6	42	1
Feline	8	8	4	4
Bovine	6	5	3	2
Bat	2	2	2	1
Canine	1	1	0	0
Equine	1	1	0	0
Total	109	23	51	8

the small number examined. The disease has seldom been encountered in the horse, but this one case of rabies in 1967 did result in exposure to a large number of people. The two animals most frequently examined for rabies, the dog and cat, have a very low incidence of positive cases. However, each case in these two species is similar to the bovine specimens by each case resulting in a high level of human exposure. Bat rabies in Kansas appears in a meaningful number of specimens to justify concern following exposure. This data is summarized in *Table 2*. The animals examined and found negative for rabies in 1967 and 1968 included 27 and 29 species, respectively. A large number of wild animals, including the wild rodent species, together with a number of the smaller caged pet animals are included in this group. The types of animal and number examined are given in *Table 3*. The significant number of the various species examined during the two-year period and found negative provides a basis for evaluation of proposed therapy. Rabies has been reported in rodents and lagomorphs in the United States, but accounted for only 0.2 per cent of the reported animal rabies cases in 1968

(one hamster, one gopher, one mouse, four ground hogs, and one rabbit).³ The exact number of these species examined for rabies in the United States is not available. Estimates indicate that this group of animals account for a large portion of the animal bite exposures occurring each year, and therefore a large segment of the total number of specimens examined by the laboratories. Thus the incidence in these species cannot be determined accurately, but can be considered extremely low.

Rabies in the animal population in Kansas occurs primarily in the skunk. The incidence of the disease in the common pet animals, dog and cat, has been very low and is probably attributable to both confinement practices and vaccination programs. A significant infection rate occurs in cattle and warrants consideration when encephalitic disease syndromes develop in these species. Areas of the world with major endemic rabies report the infection in such species as rabbits, squirrels, owls, and hawks.¹ The absence of reported rabies in these and the small rodent species in Kansas, following laboratory examination of large numbers of specimens, should

TABLE 2
PERCENT OF SPECIMENS POSITIVE IN SPECIES WITH RABIES

<i>Species</i>	TOTAL NO. EXAMINED	1967		TOTAL NO. EXAMINED	1968	
		NUMBER POSITIVE	PERCENT POSITIVE		NUMBER POSITIVE	PERCENT POSITIVE
Skunk	155	91	58.7	93	42	45.2
Equine	5	1	20.0	2	0	0.0
Bovine	63	6	9.5	47	3	6.4
Bat	72	2	2.8	127	2	1.6
Feline	452	8	1.8	440	4	0.9
Canine	256	1	0.4	269	0	0.0

TABLE 3
TYPE AND NUMBER OF SPECIMENS
NEGATIVE FOR RABIES

Species	1967	1968
Badger	3	0
Bat	70	125
Bovine	57	44
Cat	444	336
Chipmunk	2	3
Coyote	10	8
Dog	255	269
Ferret	2	0
Fox	2	4
Gerbil	1	7
Gopher	6	7
Guinea Pig	11	20
Hamster	123	107
Horse	4	2
Mole	6	10
Monkey	6	3
Mouse	75	105
Muskrat	13	8
Opossum	12	33
Porcine	2	1
Prairie Dog	1	3
Rabbit	42	48
Raccoon	47	29
Rat	76	99
Rodent (unidentified)	0	8
Skunk	64	51
Squirrel	100	81
Others ¹	7	7
Total	1,439	1,518

¹ Figures include one of each of the following for 1967: Avian, Bobcat, Elk, Goat, Hawk, Ovine, and Shrew; and for 1968: Bobcat, Chinchilla, Civet, Mink, Sea Lion, Ovine, and Turtle.

provide evidence to alleviate undue concern following exposure to these animals.

References

1. Grimes, G. M. et al.: Epidemiology of Rabies in South Bavaria. Military Bulletin, U.S. Army, Europe, Vol. 25 (Jan. 1968) No. 1.
2. National Communicable Disease Center Zoonosis Surveillance-Rabies. U. S. Dept. of H.E.W. Annual Rabies Summary—1967.
3. National Communicable Disease Center Zoonosis Surveillance-Rabies. U.S. Dept. of H.E.W. Annual Rabies Summary—1968.
4. Shook, J. C. et al.: Report of Committee on Rabies. Proc. of Seventy-Second Annual Meeting of the U.S. Livestock Sanitary Assoc. 1968.
5. Wilcox, D. et al.: Morbidity and Mortality Weekly Report, U.S. Dept. of H.E.W., Vol. 17 (1968) No. 42.

Transposition
(Continued from page 482)

18. Yater, W. M.: Congenital heart block. *Amer. J. Dis. Child.* 38:112, 1929.
19. Lester, R., Anderson, R. C., Amplatz, K., and Adams, P.: Roentgenologic diagnosis of congenitally corrected transposition of the great vessels. *Amer. J. Roentgenol., Rad. Therapy, and Nuclear Med.* 83:985, 1960.
20. Carey, L. S., and Ruttenberg, H. D.: Roentgenographic features of congenitally corrected transposition of the great vessels. A comparative study of 33 cases with a roentgenographic classification based on the associated malformations and hemodynamic states. *Amer. J. Roentgenol. Rad. Therapy, and Nuclear Med.* 92:623, 1964.
21. Lev, M., and Rowlett, U. F.: The pathologic anatomy of mixed levocardia. A review of 13 cases of atrial or ventricular inversion with or without corrected transposition. *Am. J. Cardiol.* 8:216, 1961.
22. El Sayed, H., Cleland, W. P., Bentall, H. H., Melrose, D. G., Bishop, M. B., and Morgan, J.: Corrected transposition of the great arterial trunks: Surgical treatment of the associated defects. *J. Thor. and Cardiovasc. Surg.* 44:443, 1962.
23. Levy, M. J., Lillehei, C. W., Elliott, L. P., Carey, L. S., Adams, P., Jr., and Edwards, J. E.: Accessory valvular tissue causing subpulmonary stenosis in corrected transposition of great vessels. *Circ.* 27:494, 1963.
24. Kay, E. B., Rodriguez, P., and Zimmerman, H. A.: Surgery for ventricular septal defect through a left ventriculotomy. *Amer. J. Cardiol.* 15:267, 1965.
25. Hallman, G. L., Gill, S. S., Bloodwell, R. A., McNamara, D. G., Latson, J. R., Leachman, R. D., and Cooley, D. A.: Surgical treatment of cardiac defects associated with corrected transposition of the great vessels. *Circ.* 35, Suppl. 1:133, 1967.

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Fat Embolism Syndrome

Premortem Diagnosis by Cryostat Frozen Sections

ANTONIO HUAMAN, M.D., WILLIAM NICE, M.D., and
INNEZ YOUNG, H.T., *Topeka*

We have investigated the presence of neutral fat in blood clots in patients who had skeletal fractures. The preliminary results indicate very close correlation between the finding of neutral fat in the circulating blood and the clinical manifestations usually characterized as fat embolism. The method used in this study is the staining of neutral fat by Oil Red performed on cryostat frozen sections of the blood clot. The preliminary results indicate that this method could well be the best approach to the early diagnosis of fat embolism in vivo.

FAT EMBOLISM is a syndrome which is frequently considered among the complications of the patient with fractures. This awareness has resulted in its clinical diagnosis and successful treatment. The clinical manifestations such as the petechia, shock, and the laboratory tests such as the elevation of the serum lipase, urine fat, depression of hemoglobin and the changes in the blood gases are useful; however, these manifestations are not specific, or represent delayed and indirect phenomena. Therefore, a direct method for early diagnosis of fat embolism is urgently needed.

For several months in our hospitals and laboratories in the Topeka area, several patients have been observed both clinically and at the autopsy table. The demonstration of neutral fat in the pulmonary capillaries was accomplished by cryostat frozen sections and Oil Red stainings. In these same patients, neutral fat was demonstrated in the premortem and postmortem clots by the same technique. Therefore, we have decided to evaluate the presence of neutral fat in the blood clot as a means of early diagnosis of the syndrome of fat embolism in a number of pa-

tients with fractures. This communication is meant to be preliminary and we shall present our short experience which has rendered timely diagnosis and therapeutic accomplishments.

Material and Methods

Studies were done on 35 patients admitted to the hospital after suffering fractures of various bones. At the time of the laboratory work, a test tube with a blood clot was reserved for our study.

After coagulation of the blood and a certain degree of clot retraction, the clots were sectioned lengthwise and cryostat frozen sections obtained.

The sections were stained for neutral fat as follows:¹

- A. Dry the section at room temperature.
- B. Fix in 70 per cent ethyl alcohol for 30 seconds.
- C. Stain with 1 per cent alcoholic solution of Oil Red. (The solution, which is kept in refrigeration, should be filtered before used.)
- D. Wash in alcohol 70 per cent (briefly).
- E. Wash in tap water.
- F. Stain in modified Harris hematoxylin for 30 seconds.²
- G. Wash in tap water.
- H. Expose the section to fumes of ammonia for 10 seconds.
- I. Mount in glycerin gel.

Results

Of 35 patients examined, seven had a clinical picture customarily diagnosed as fat embolism. Of these, six had neutral fat in the blood clot and the remaining one only showed granular neutral fat. One of the patients who died 24 hours after the accident showed characteristic droplets in the premortem blood clot, in the postmortem blood clot and in the pulmonary capillaries.

The positive reaction consists of fat droplets which stand out from the granular brownish background because of their bright red color and because of a small crescentic, empty space around them. This space apparently indicates that the area was physically occupied at the time of the sectioning and retracted during the preparation. The case showing granular fatty material failed to show this characteristic appearance, but the test was performed seven

Presented by Dr. Nice at the American College of Chest Physicians meeting, Chicago, October 29, 1969.

Presented by Dr. Huaman at the 7th Latin American Congress of Pathology and the 2nd Pan-American meeting of the International Academy of Pathologists, Buenos Aires, Argentina, November 22, 1969.

From Lattimore-Fink Laboratories and Saint Francis Hospital, Topeka, Kansas.

days after the accident. In one case, fragments of bone marrow in the blood clot were demonstrated.

Commentaries

Fat embolism was scientifically described in 1862 when Zenker found neutral fat in pulmonary capillaries. Three years later, Wagner linked them to bone fractures and in 1873, Bergman made the first clinical diagnosis in a worker who had fractures of the right femur followed by dyspnea, cyanosis, hemoptysis and death 79 hours after the accident. During the last ten years, the increasing number of accidents with fractures has originated a remarkable awareness of the fat embolism syndrome. During this time also, several therapeutic measures have been successfully tried such as the administration of heparin and alcohol.³

The laboratory procedures used now for diagnosis show significant limitations. For instance, determination of the serum lipase^{4,5} is only a slow response which becomes significant three days after the accident. The appearance of neutral fat in the urine or in the spinal fluid is equally a very slow phenomenon. In addition, these two tests are inconsistent because the main target of the embolism resides in the pulmonary circulation and only secondarily and infrequently extends to the arterial circulation. Surprisingly enough the peripheral circulation has not been explored in this regard although it represents the carrier of the fat droplets. In so doing, the fat

droplets get trapped together with the blood cells during the blood coagulation and little or no fat is left in the plasma. It is not surprising then that the studies in plasma usually bring disappointment.

The advent of frozen sections by use of the refrigerated microtome commonly known as cryostat has indeed contributed to our approach. This instrument, used for the diagnosis of surgical and medical diseases, certainly presented the fat embolism problem as a very logical one to be investigated. The encouraging success of the first 35 cases has greatly stimulated our interest and a project for a more complete evaluation of positive and negative cases is underway. In the meantime, considering that many patients may be lost for lack of a conclusive diagnosis we present this preliminary experience and recommend the fat-staining of the blood clot for the diagnosis of the fat embolism during the first few hours after the accident.

References

1. Luna, Lee G. (Editor): *Manual of Histologic Staining Methods of the Armed Forces Institute of Pathology*. Third Edition. McGraw-Hill Book Co., 1968, page 140.
2. Huaman, A.: Cryostat frozen section—*J. Kans. Med. Soc.* LXVIII: 453-455, Dec. 1967.
3. Nice, W.: Fat embolism syndrome: Diagnosis and treatment. *J. Kans. Med. Soc.* LXIX:45-46, Feb. 1968.
4. Peltier, L. F., and Lai Sing-Ping: Fat embolism; the significance of an elevated serum lipase after trauma to bone. *Am. J. Surg.* 99:821-825, 1960.
5. Peltier, L. F.: The diagnosis of fat embolism. *Surg., Gyn., & Obst.* 121:379, 1965.

Merry Christmas

and a

Happy New Year

THE JOURNAL OF THE
KANSAS MEDICAL SOCIETY

Clinical Cardiology

Cardiovascular Roentgenology: Conventional Studies

M. VIAMONTE, M.D.,* *Miami Beach, Florida*

CARDIAC FLUOROSCOPY and chest roentgenography complement history, physical examination and electrocardiography for the optimal evaluation of patients who have known or suspected cardiovascular disease.

Fluoroscopy is best accomplished using an image intensifier with optical or television monitoring. The major contribution of cardiac fluoroscopy is for the identification of abnormal calcifications for the detection of abnormal cardiac contractility and for the analysis of chamber enlargement. Cardiac fluoroscopy also aids in the recognition of pericardial effusion and the analysis of cardiac contractility and great venal pulsation. Diaphragmatic mobility and changes in size of pulmonary nodules or masses when performing the Valsalva and Muller maneuver may be observed via fluoroscopy.

Cardiac fluoroscopy, especially in infants, children, and women in the child bearing age, should be conducted using minimum exposure and maximum patient protection. It is our policy to analyze the chest roentgenograms prior to the fluoroscopic examination. A barium swallow study should be done as part of the fluoroscopic examination. Routine chest roentgenograms for cardiovascular evaluation at our institution includes the following five films: (1) postero-anterior chest roentgenograms without barium; (2) left antero-oblique view at 45° without barium; (3) right antero-oblique view at 60° with barium; (4) left lateral view with barium, and (5) postero-anterior view, overpenetrated with barium. Because the heart is a three dimensional structure all these views are essential for complete evaluation of chamber enlargement.

Overall size of the heart is evaluated by the cardiothoracic ratio, which is the maximum transverse diameter of the heart divided by the maximum internal transverse diameter of the chest. This ratio should be less than 50 per cent except in extreme obesity, or when the diaphragm is elevated causing the heart to adopt a horizontal position. Cardiomegaly may be misdiagnosed in the presence of a

prominent pericardial fat pad. The latter is easily recognized by the relative translucency observed around the apex of the left ventricle at the left cardiophrenic junction. A pericardial fat pad may also exist at the right cardiophrenic angle.

In the postero-anterior view, the right heart border has two arches. The cephalic one is the vascular arch caused by the ascending aorta in adults, by the superior vena cava and right lobe of the thymus in infants and young children, or by the superposition of the ascending aorta and the superior vena cava in certain individuals. The caudal arch of the right heart border is formed by the right atrium.

The upper portion of the left heart border in the frontal projection is formed by the aortic knob (junction of transverse and descending portions of the thoracic aorta). The middle arch is formed by the left border of the pulmonary trunk (upper two thirds), left auricular appendage (lower one third), and the proximal portion of the left branch of the pulmonary artery. The caudal arch of the left heart border is formed by the left ventricle.

The left anterior oblique projection separates the left from the right heart chamber. The latter occupy the anterior half of the heart. The posterior heart border is symmetrically convex and appears separated from the left bronchus by a radiolucent area representing aerated lung parenchyma. The anterior half of the heart is occupied by the right atrium superiorly and the right ventricle inferiorly. A line extending the anterior border of the trachea divides the heart in two almost equal halves and usually indicates the plane of the interatrial and interventricular septa. The left anterior oblique projection is utilized during selective angiocardiology for the study of left-to-right shunts at the atrial or ventricular levels. Contrast medium injected into any of the left heart chambers, if seen to be directed anteriorly, indicates the presence of a left-to-right intracardiac shunt. This is also an excellent view for evaluating valvular, subvalvular or supra-valvular aortic pathology. The left anterior oblique projection unfolds the thoracic aorta. Left ventricular outflow tract obstructions are best analyzed in this projection. This is the projection of choice for selective injection of the right and left coronary arteries. The

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Prepared for the JOURNAL by the Kansas Heart Association.

right coronary artery is directed anteriorly and the left coronary artery posteriorly. The anterior descending division of the left coronary artery crosses the mass of the heart in the left anterior oblique projection.

The right anterior oblique projection is the view that separates the atria from the ventricles. The right anterior oblique projection should be taken at 60°. The reason for this is that it requires this degree of rotation of the patient in order to separate the heart from the spine. The left and right atrium are projected posteriorly and the right and left ventricle are superimposed anteriorly. This view is most important for selective ventriculography for the evaluation of pathology of the atrioventricular valves. It is also a very important view for the evaluation of the atrial enlargement.

The left lateral view of the heart separates the left atrium and left ventricle posteriorly from the right ventricle and right atrium anteriorly. In the lateral projection of the heart, on deep inspiration one usually sees a vertical line crossing the angle formed by the posterior heart border (diaphragmatic portion of the left ventricle) and the left leaf of the diaphragm. This line corresponds to the posterior wall of the inferior vena cava. When the posterior heart border projects dorsal to the caval line this usually is indicative of left ventricular enlargement. The left lateral projection is of importance for the evaluation of heart size in the ventro-dorsal direction, for the evaluation of left atrial, left ventricular and right ventricular enlargement, for the diagnosis of obstructive airway disease (i.e. diffuse obstructive pulmonary emphysema), and for the recognition of thoracic wall deformities, such as sternal depression and the so-called straight back syndrome. This is an excellent view for the analysis of the size of the primary division of the pulmonary artery. The right pulmonary artery usually projects as an oval shadow just caudal and ventral to the tracheal bifurcation. The left pulmonary artery courses above and dorsal to the left bronchus.

The overexposed frontal view of the heart is of value for the recognition of abnormal cardiac calcification, for the detection of an enlarged left atrium, for best localization of the thoracic aorta, and for the analysis of esophagus-heart relationships. The postero-anterior view of the heart is used for the evaluation of heart size in the frontal plane, and of cardiovascular configurations. The heart is said to have an "aortic or left ventricle configuration" when the left ventricular arch and the aortic knob are prominent. This determines relative narrowing of the waist of the heart (relative concavity of the middle arch of the left heart border). The "mitral configuration" is said to be present when the shadow of

the aortic knob is small, the middle arch of the left heart border appears to be straight or convex, and the left ventricular arch is inconspicuous. The left heart border follows a straight line directed from midline to the left hemidiaphragm. A double density caused by left atrial enlargement and inversion of the pulmonary vasculature (upper, medial pulmonary vessels appear larger than lower medial pulmonary vessels) complete the picture of the "mitral cardiovascular syndrome." The "left-to-right shunt configuration" is said to be present when there is marked convexity of the middle arch of the left heart border and uniform pulmonary vascular plethora. "Fallot configuration" is said to be present when there is prominent rounding of the left ventricular border which appears raised above the diaphragm, the middle arch of the left heart border appears concave, and the shadow of the aortic knob is barely visible. This heart configuration is usually associated with pulmonary hypovascularity (secondary to right-to-left shunt). This group of findings is not pathognomonic of Fallot's tetralogy. It may be seen with other anomalies such as tricuspid atresia and persistent truncus arteriosus. The so-called "water bottle configuration" is said to be present when the right and left heart borders appear rather symmetric. There is enlargement of the transverse diameter of the heart. The pulmonary vasculature appears to be normal or decreased. This configuration is the consequence of massive pericardial effusion and of cardiac dilatation (primary and secondary myocardiopathies).

Of all the heart chambers the left atrium is the easiest to analyze. It is the most posterior chamber of the heart and hence contacts the esophagus. When the left atrium is enlarged, in the frontal projection one may see slight convexity of the lower third of the middle arch of the left heart border due to dilatation of the left auricular appendage. A disc-like density appears in the center of the heart and causes a double density on the right heart border and occasionally accounts for a third arch at the right heart border (the middle one). The interbronchial angle may appear to be widened (greater than 70°) when enlargement of the left atrium is directed superiorly. In extreme left atriomegaly, the esophagus may appear displaced to the right or to the left of the midline. Rarely, one may see atelectasis of the left lower lobe secondary to obstruction of the left lower lobe bronchus from a markedly enlarged left atrium.

In the left anterior oblique projection the enlarged left atrium will obliterate the clear infra-bronchial space. One may see elevation of the left main bronchus. In the right anterior oblique projection the esophagus will no longer parallel the thoracic spine. Variable degrees of esophageal dis-

placement may be encountered. Elongated marked esophageal displacement indicates left atrial enlargement usually seen with severe degree of mitral insufficiency. Localized, slight esophageal displacement indicates mild left atrial enlargement and predominant mitral stenosis.

Right atrial enlargement is best evaluated in the left anterior oblique projection. Prominence of the superior aspect of the anterior heart border usually reflects enlargement of the right auricular appendage. In the frontal projection, the right atrial border may appear displaced to the right and cephalad. There may be cephalic displacement of point B (junction of the right atrial border and the vascular arch). The right anterior oblique and left lateral projections are not helpful for the evaluation of right atrial enlargement.

Enlargement of both ventricles will displace the apex of the heart caudally and towards the left. However, enlargement of the right ventricle is suspected with convexity of the middle arch of the left heart border. As the right ventricle is not a border forming structure in the frontal projection, indirect evidence of right ventricular pathology is suspected whenever one observes convexity of the middle arch of the left heart border and abnormal pulmonary vascularity. Pulmonary valvular stenosis, left-to-right shunts and pulmonary arterial hypertension are the most common causes of convexity of the middle arch of the left heart border. Rarely, the ascending aorta may occupy the middle arch of the left heart border (in corrected transposition of the great arteries, for example). In some instances abnormal convexity of the middle arch of the left heart border is related to herniation of the left auricular appendage through a partial pericardial defect or to a non-vascular condition such as an enlarged thymus, tumor, adenopathy, etc.

The left lateral projection of the heart provides for the best profile analysis of the right ventricle. The closeness of the anterior heart border to the sternum is not a good sign of right ventricular enlargement. In patients with a narrowed antero-posterior diameter of the chest, the heart is close to or contacts the sternum. The left and right anterior oblique projections are not informative for the evaluation of right ventricular enlargement.

The best view for evaluating left ventricular enlargement is the left anterior oblique projection. In this view when the left ventricle is enlarged it usually overlaps and may project beyond the thoracic spine. The angle formed between the left ventricle and the left hemidiaphragm may become obtuse. The right anterior oblique projection is not useful for evaluating left ventricular enlargement. In the frontal projection the shape of the left ventricular arch

may reflect volume (broad large arch) and pressure (rounding, short arch) hypertrophy.

Pressure hypertrophy of either ventricle may be radiographically silent. Physical findings and electrocardiography are usually more sensitive than conventional roentgenography for the establishment of right or left ventricular hypertrophy. However, volume hypertrophy of either ventricle modifies heart size and configuration and will exaggerate the convexity of these chambers.

Asymmetric enlargement of the ascending aorta may be seen with aortic valvular stenosis (post-stenotic dilatation) and with syphilis. When the aorta becomes dilated and tortuous the descending aorta may project beyond the middle arch of the left heart border. In such instances, the right superior mediastinum may show a convex density usually caused by a tortuous dilated or displaced innominate artery. Arteriosclerosis dilates and at the same time elongates the thoracic aorta. As the thoracic aorta has a fixed position at the level of the aortic valve and at the aortic hiatus of the diaphragm, elongation will occur and will displace the aortic anteriorly, cephalically, toward the right, and dorsally, beyond the thoracic spine. Analysis of calcification at the level of the thoracic aorta is important. Dissecting hematoma, and lues (with ascending aorta calcification) cause characteristic findings. Pericardial, coronary artery and valvular calcification are best analyzed at fluoroscopy. The best view to separate mitral from aortic valvular calcification is the left anterior oblique view. Aortic valvular calcification will project in the center of the heart and will have a cephalocaudal (head-foot) motion. Mitral valvular calcification will project in the posterior third quadrant of the heart and will have a reverse C shaped motion.

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The President's Message

MISS ANN LANDERS

We should feel very fortunate that Miss Ann Landers has agreed to be our speaker at the annual banquet. You might mark your calendar now; it will be May 3 in Wichita.

Miss Landers is one of the best friends medicine has and she reaches probably the largest audience of any woman in America. I am one of her most avid readers and can testify to the many times she has come to the defense of our profession. She widely uses members of the profession as consultants and always gives them full credit. The ones she uses in my specialty of pediatrics have always been quite sound.

Her talent lies in taking this sound advice, adding her touch of Midwestern common sense, and then presenting it in a most readable form. Her other touch of genius lies in her selection of letters to answer and the proper mix of topics to maintain continuing interest.

Her defense of the profession is likewise well done. She portrays us always as humans who, by and large, are trying to do their best but are sometimes fallible. She readily admits, as we do, that there are bad apples in every barrel. But, she points out that the bad apples are small in number and that perhaps the writer of the letter might also bear some of the fault for an unhappy result.

Miss Landers, in her letter accepting our invitation, said that this was a very busy time for her and that, "I must be out of my mind, . . . Nonetheless, I am saying yes because physicians are my favorite people." I hope that we can fill the ballroom to overflowing to show that the feeling is mutual.



LELAND SPEER, M.D.

President



Editorial COMMENT

Joint Commission for Accreditation of Hospitals approved a revised set of standards and has not set a date for their implementation. The interpretation of Standard I says in part, "Physicians who are members of the medical staff, where legally permissible, shall be eligible for and should be included in membership on hospital governing bodies in the same manner as are all other knowledgeable and effective individuals. Other physicians also should be considered eligible for membership on the governing body." Hospital administrators will have copies of the entire document. The Commission welcomes comments.

The Joint Commission in a letter to the Society reports 32 hospitals in this state are scheduled for survey in 1970. Inquiries regarding any hospital may be directed to the Society.

Trip insurance of \$5,000 has been purchased by the Kansas Medical Society for every physician who is asked by this Society to participate in a meeting. He is covered for his trip in a reasonably direct route to and from the occasion. The one exception is the physician who pilots his own plane.

Welfare costs are exceeding appropriations. Although newspapers have dealt much with utilization, an examination of the Kansas situation reveals there are now 110,000 recipients under Title XIX. Last year there were 80,000. It was estimated hospital cost would rise 12 per cent. Actual increases were 17 per cent. Certainly these two factors have contributed to the additional cost.

Carpenters' wages in New York City are now \$11.08 an hour. After 35 hours of work in one week, overtime becomes \$22.16. A brief exercise to com-

pute the annual earnings of a carpenter, were he to work the hours per week of the physician, will produce an interesting result.

Professional liability insurance is becoming increasingly expensive. In some areas in southern California premiums for general practitioners doing limited surgery or obstetrics will rise from \$1,000 to more than \$3,000.

Average length of hospital stay was studied for 12 selected surgical procedures. The range was 11.5 days in the Mountain States and 17.4 days in the middle Atlantic States. The Commission on Professional and Hospital Activities, Ann Arbor, Michigan, made the study of more than 100,000 patients discharged from 800 hospitals. They suggest that major difference was caused by variations in preoperative stay. In Pacific States operations were performed on 75 per cent within one or two days after admittance. In the middle Atlantic States this was only 45 per cent. Had the Pacific experience applied to the middle Atlantic region, it would have saved 13 per cent of the hospital days used by these patients.

Professional Services Study is the subject of a new committee at work in this Society. In contrast to utilization study, this committee will attempt to provide guidelines for review of professional services rendered outside the hospital. The first committee objective is the declaration that work in this area shall be educational, not punitive. Next, they are searching for areas of study that promise a reasonable yield; for example, patients with more than three office visits per week. Its purpose is to assure the public of maximum value received for the health care dollar spent. The committee will welcome suggestions.

Support AMA-ERF

DEAR DOCTOR:

Last year contributions by the Woman's Auxiliary to AMA-ERF totaled \$428,875.77. This year we are hoping to reach the \$500,000 mark, and we do need your help.

We are supporting three of the foundation's most important projects—Funds for Medical Schools, the Institute for Biomedical Research, and Loans for Medical Students.

Each medical school dean can use this unrestricted money where he needs it the most; perhaps for books, recreation and student activities budgets, newsletters for the faculty and administration, expense money to welcome prospective faculty members (where no money is provided for this expense), and many related projects. The deans are faced with the fact that their normal costs of operation are mounting, and in order to meet the additional demands being placed on them, medical schools must expand their enrollments to provide the country with more physicians. At the same time, they must expand their faculty, increase faculty salaries, modify their curriculum, and undertake extensive building projects. This fund has the potential to relieve much of the financial pressure caused by these necessary changes.

Recently, I had the opportunity to read a compilation of letters received by the AMA-ERF office in Chicago after each dean was requested to state how his money was spent. Our KU dean, Dr. George Wolf, wrote an excellent, detailed, three-page letter explaining how he had spent the money and the great need for it. He stressed the point that it enabled him to do various things for the students, staff, and faculty that his money from the state budget did not allow him to do. His theories were right down the line with most of the deans, especially those from the Middle West who are with state supported schools. Many times an emergency may arise, and if the deans have extra, flexible funds to meet these emergencies, the AMA-ERF funds can be used very satisfactorily.

The AMA-ERF's Institute for Biomedical Research is headed by a Nobel prize winning scientist, Dr. George Beadle. Work in pure biomedical research continues at a rapid pace in five major areas—experimental medical ecology, regulatory biology, virology, neurobiology, and molecular biophysics. Your contribution to the Institute will provide for the finest scientists, laboratory facilities, instruments of the highest caliber, and appropriate quarters and upkeep for experimental animals. This is one of the few privately supported institutes in the world.

The Loan Guarantee Fund has been reactivated this fall. It is estimated that 20,300 new loans for students for a total of \$26,300,000 will be made from 1969 through 1975. If your contribution is earmarked for this fund, you can be assured that your money will be used over and over again.

Please remember that your contributions are tax deductible. We shall greatly appreciate any contributions you may wish to send. As Kansas AMA-ERF Chairman, contributions should be sent to me: Mrs. Clair J. Cavanaugh, 1320 Cleveland, Great Bend, Kansas 67530.

Sincerely,

Jean Cavanaugh

MRS. CLAIR J. CAVANAUGH
Kansas AMA-ERF Chairman



Personalities—IN KANSAS MEDICINE

Dr. and Mrs. Farris Evans, Wichita; Dr. and Mrs. Kenneth Grigsby, Dr. and Mrs. Charles Dickenson, and Dr. Albert E. Martin, all of Coffeyville, attended the 11th Congress of the Pan Pacific Surgical Association, Honolulu, Hawaii, in October.

William G. Eckert, Wichita, was one of the lecturers at the Soviet-American Joint Post Graduate Meetings of Forensic Medicine held in Moscow, Russia, in October.

Ivan Carper, Newton, and Roger L. Youmans, Kansas City, were initiated into the American College of Surgeons in October. The Fellowships were conferred at the annual meeting of the College of Surgeons in San Francisco.

Donald D. Goering, Salina, was installed as president of the Kansas Academy of General Practice at the organization's annual meeting held in Salina in October. Other officers include E. I. Chaney, Belleville, president-elect; J. W. Jacks, Pratt, vice president; and W. R. Lentz, Topeka, secretary-treasurer. David Leitch, Garnett, was elected to the board of directors.

New officers were elected at the meeting of the Kansas Orthopaedic Society held in Newton last month. John Lynch, Topeka, succeeds Jack Grove, Newton, as president, and Don Hobbs, Topeka, is the new secretary-treasurer, succeeding H. O. Marsh of Wichita.

C. J. Kurth, Wichita, spoke to Republic County youths on the uses of marijuana and drugs at a meet-

ing sponsored by the Belleville Kiwanis Club.

Hervey R. Hodson, Wichita, has been elected president of the E. S. Edgerton Medical Research Foundation. The Foundation, established in memory of Dr. E. S. Edgerton, promotes special research in the areas of applied rehabilitation techniques and further development of medical research into cancer, heart, stroke and other disabling diseases.

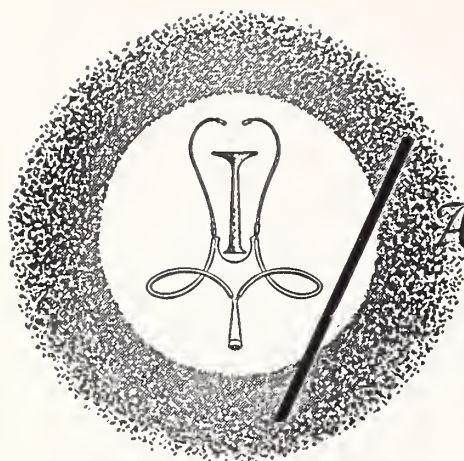
Newton physician, Lee S. Fent, has been elected to the national board of directors of the American Cancer Society.

Dr. and Mrs. R. G. Sheppard, Smith Center, attended the annual meeting of the American College of Surgeons in San Francisco in October.

Alcoholism and drug addiction were the main program topics at the fall conference of the Kansas Rehabilitation Association held in Hutchinson in October. Speakers at the conference included Dwight Lawson, Topeka; Paul Stoesz and David Lukens, both of Hutchinson.

Among those attending the annual scientific assembly of the American Academy of General Practice in Philadelphia were James J. Basham, Fort Scott, and Dr. and Mrs. L. D. Bowles, Wamego.

Dr. and Mrs. G. B. Sekavec, Oakley, attended a convention of the Western Association of Railway Surgeons at Lake Tahoe, California, in October.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

The American Board of Family Practice announces that it will give its first examination for certification in various centers throughout the United States. The examination will be over a two-day period on February 28-March 1, 1970. Information regarding the examination and eligibility for the examination can be obtained by writing:

Nicholas J. Pisacano, M.D., Secretary
American Board of Family Practice, Inc.
University of Kentucky Medical Center
Annex #2, Room 229
Lexington, Kentucky 40506

JANUARY

Jan. 15-17 American College of Physicians (Colorado Regional Meeting), The Broadmoor, Colorado Springs, Colorado. Write: William A. H. Rettberg, M.D., 4200 E. 9th Avenue, Denver, Colorado 80220.

FEBRUARY

Feb. 2-4 Sectional meeting, American College of Surgeons, Portland Hilton, Portland, Oregon.

Feb. 16-18 Annual meeting, American Academy of Allergy, Jung Hotel, New Orleans, Louisiana. For information write the Academy, 756 N. Milwaukee, Milwaukee, Wisconsin 53202.

Feb. 16-18 Sectional meeting, American College of Surgeons, St. Paul Hilton, St. Paul, Minnesota.

Feb. 25-Mar. 1 Annual session, American College of Cardiology, Rivergate Center, New Orleans, Louisiana. Write: William D. Nelligan, Exec. Dir., 9650 Rockville Pike, Bethesda, Maryland 20014.

POSTGRADUATE EDUCATION

University of Kansas:

Feb. 9-10 *Cardiac Auscultation*

Feb. 25 *The Handicapped Child (Great Bend)*

Mar. 16-18 *Pediatrics*

Mar. 23-25 *Surgery*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

Jan. 18-24 *General Practice Review*

Feb. 2-6 *High Risk Infant Care (limited)*

Feb. 17-20 *Surgery of the Hand*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

Jan. 22-23 *Computers in Medical Practice*

Feb. 9-11 *Cardiopulmonary Resuscitation*

Feb. 20-22 *Clinical Otorhinolaryngology*

For further information write: Department of Postgraduate Education, University of Nebraska Medical Center, 42nd and Dewey Avenue, Omaha 68105.

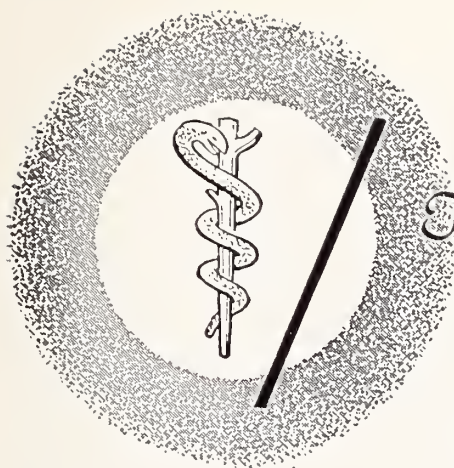
University of Iowa:

Feb. 10-13 *Refresher Course for General Practitioners*

For further information write Director of Postgraduate Education, University of Iowa College of Medicine, 100 Westlawn, Iowa City 52240.

Jan. 2-6 *Function and Dysfunction of Gastrointestinal Tract*, postgraduate course sponsored by the American College of Physicians, Americana Hotel, Miami, Florida.

Feb. 14-15 Two-day postgraduate course in connection with annual meeting of American Academy of Allergy, Jung Hotel, New Orleans. Topics to be discussed: *Pulmonary Diseases and Asthma; Developments in Medicine Relating to Allergy; Clinical Immunology; and Organ Transplantation*. For additional information write the Academy, 756 N. Milwaukee, Milwaukee, Wisconsin 53202.



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

DOCTORS ARE PEOPLE TOO

One great fault of government health care programs to date is failure to recognize that people are involved at both ends of the health care equation. On one end are those who need care and on the other are those who must provide the care—the nation's doctors. In the past, laws have been written creating health care programs with little consideration for the multitude of problems imposed by such programs on the medical profession. Although responsibility for making the programs work is laid at the doors of the doctors, medical men have generally been treated as a mere public utility by medical care planners.

Inflation has presented physicians with the same rising costs facing everyone else—a fact that should be kept in mind in seeking any solution to the problem of fees to be charged under medicare and medicaid. As an official of the American Medical Association points out, physicians' fees are not the major cause of spiraling medicaid expenditures, and the imposition of fee ceilings on physicians only "is clearly discriminatory." The spokesman went on to warn, "Caution is needed lest any action which is taken may have a discouraging effect upon full scale participation in the medicaid programs." Recent changes in the rules governing fees may reach beyond congressional intent.

The medical profession is working wholeheartedly to make government health care programs work. Its voluntary cooperation will be greatly stimulated if government and the public recognize one practical fact—doctors are people too.—*Pratt Tribune*, October 8, 1969.

MEDI-BOO-BOO

By next July, Part B of the medicare program is going to cost more.

Right now participants are paying \$4 monthly and the government is operating at a deficit. Actual cost a year ago was \$4.40. Federal officials estimate that by next July the increase will be to something over \$5 a month.

Part B is that section of medicare that takes care of the fees of doctors. Recently, one of the reasons for the increase came to light in a House committee hearing.

A federal official testified, "We handle 40-45 million physicians' bills a year under medicare now."

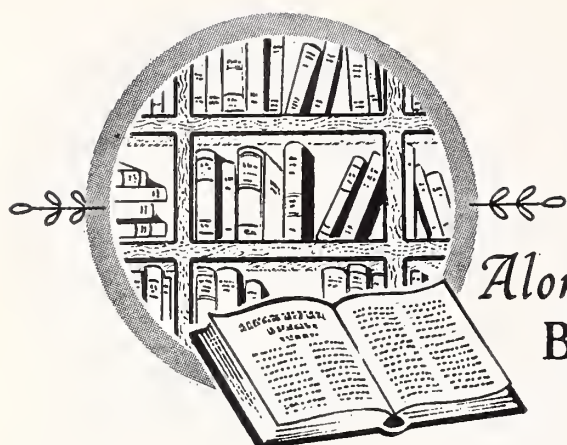
In itself, this is a staggering amount of paper work. Just imagine storing this amount of paper, let alone keeping track of it. A total of 19 million persons are involved in this kind of coverage.

What we are seeing is a federal program designed to help pay medical costs of the aged that eventually will be too expensive for even the indigent to afford.

There has got to be a better way.—*Ottawa Herald*, November 6, 1969.

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Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Allen O. Whipple Surgical Society. The training of surgeons in the future. Springfield, Ill., Thomas, 1968.
- Allen, Ruth. An annotated bibliography of biomedical computer applications. Washington, 1969.
- Behrman, Samuel J., editor. Fertility and family planning; a world view. Ann Arbor, Univ. of Michigan Press, 1969.
- Caceres, Cesar Augusto. Diagnostic computers. Springfield, Ill., Thomas, 1969.
- Cooper, R. EEG technology. London, Butterworth, 1969.
- Cratty, Bryant J. Motor activity and the education of retardates. Philadelphia, Lea & Febiger, 1969.
- Des Lauriers, Austin M. Your child is asleep; early infantile autism; etiology, treatment, parental influences. Homewood, Ill., Dorsey Press, 1969.
- Dupont, Herbert L. Diarrheal diseases. Chicago, Year Book Medical Publishers, Inc., 1969.
- Földi, Michael. Diseases of lymphatics and lymph circulation. Springfield, Ill., Thomas, 1969.
- Gillis, Leon. Diagnosis in orthopaedics. New York, Appleton-Century-Crofts, 1969.
- Kamenetz, Herman L. The wheelchair book; mobility for the disabled. Springfield, Ill., Thomas, 1969.
- Maier, Henry William. Three theories of child development. Revised ed. New York, Harper & Row, 1969.
- Mussen, Paul Henry. Child development and personality. 3d ed. New York, Harper & Row, 1969.
- Reid, Duncan Earl, editor. Controversy in obstetrics and gynecology. Philadelphia, Saunders, 1969.
- Richmond, Julius Benjamin. Currents in American medicine; a developmental view of medical care and education. Cambridge, Harvard Univ. Press, 1969.
- Rickham, Peter Paul. Neonatal surgery. New York, Appleton-Century-Crofts, 1969.
- Rodger, Frederick Carson. Metabolic and nutritional eye diseases. Springfield, Ill., Thomas, 1969.
- Schröder, Rolf. Practical evaluation of the electrocardiogram; a synopsis of differential diagnosis. Springfield, Ill., Thomas, 1969.
- Wilkinson, Andrew Wood. Body fluids in surgery. 3d ed. Edinburgh, Livingston, 1969.
- Williams, Greer. The plague killers. New York, Scribner, 1969.
- Boutkan, J. ABC of the ECG; a guide to electrocardiography. Springfield, Ill., Thomas, 1969.
- Brown, Geoffrey G. Primer of histopathologic technique. New York, Appleton-Century-Crofts, 1969.
- Brown, Roscoe Conkling. New perspectives of man in action. Englewood Cliffs, N. J. Prentice-Hall, 1969.
- Carson, Peter. Cardiac diagnosis. New York, McGraw-Hill, Blakiston Division, 1969.
- Chertok, León. Motherhood and personality; psychosomatic aspects of childbirth. London, Tavistock Publications; Philadelphia, Lippincott, 1969.
- Clarke, Cyril Astley, ed. Selected topics in medical genetics; a review from the Nuffield Unit of Medical Genetics, Liverpool University. London, New York, Oxford University Press, 1969.
- Craddock, Denis. Obesity and its management. Edinburgh, Livingstone, 1969.
- Darlington, Cyril Dean. Genetics and man. Rev. ed. New York, Schocken Books, 1969.
- DeGowin, Elmer Louis. Bedside diagnostic examination. London, Macmillan, 1969.
- Eriksson, Ejnar, ed. Illustrated handbook in local anesthesia. Chicago Year Book Medical Publishers, 1969.
- Fuhrmann, Walter. Genetic counseling; a guide for the practicing physician. New York, Springer, 1969.
- Gardner, Herman Lawrence. Benign diseases of the vulva and vagina. St. Louis, Mosby, 1969.

(Continued on page 500)

The Month in Washington

(Prepared by the Washington office of the American Medical Association.)

An American Medical Association spokesman outlined the AMA's voluntary national health insurance plan, "Medicredit," for consideration by the House Ways and Means Committee.

Dr. Russell B. Roth, speaker of the AMA's House of Delegates and a practicing physician in Erie, Pennsylvania, said the plan, which would be financed in part by federal income tax credits, is flexible and would assure all Americans—no matter how limited their financial resources—of adequate health care protection.

"Representing this country's physicians as we do," Dr. Roth said, "the AMA is on record in its belief that it is the basic right of every citizen to have available to him good health care."

"Today we want to put before this committee a plan which is universal in scope, voluntary in nature, and realistic in terms of total program cost."

He estimated the program would cost the federal government \$8 billion to \$9 billion a year, but about \$3 billion a year of that would be offset by liquidation of the medicaid program. Medicare would continue.

"For those in low-income categories, this protection is theirs without expense or contribution on their part," Dr. Roth said. "For those with moderate and higher levels of income, Medicredit provides a system of cash incentives to enable them to protect themselves against major health care costs. . . ."

"Our proposal is the result of years of careful study of our existing mechanisms for delivering and financing health care, coupled with our close study of the federal government's ability to fund a universal health insurance program. . . ."

"It would give to persons who have purchased comprehensive health insurance the option of receiving a tax credit on their annual federal income tax return, a credit based on their tax liability. That is, a taxpayer could take as a credit against the amount of income tax owed to the federal government, all or part of their personal cost for comprehensive health coverage. Persons or families with a lower tax liability (usually reflecting lower income or more dependents and allowable expenses) would receive a greater tax credit. And those families in the lower 30 per cent income range, would, without cost to them, receive a certificate enabling them to purchase health coverage from qualified groups or plans."

The AMA plan calls for establishment of a

"Health Insurance Advisory Board" to create Medicredit guidelines. It would be chaired by the Secretary of Health, Education, and Welfare and include the Commissioner of Internal Revenue and public members. It would review the effectiveness of the program and file annual reports with the President and the Congress.

Basic medical benefits of Medicredit would include:

- Up to 60 days of inpatient hospital services, including maternity services;

- All emergency room and outpatient services provided in the hospital;

- All physicians' services, whether performed in the hospital, home, office or elsewhere.

Supplemental benefits to basic coverage would also be eligible for tax credits.

Dr. Roth stressed the importance of utilizing private insurance carriers, thus taking maximum advantage of private sector competition to help hold costs down.

Rep. Durward G. Hall, M.D. (R., Mo.), a former member of the AMA House of Delegates submitted to the committee another national health insurance plan. The first part of his two-part plan calls for the federal government to furnish persons eligible for medicaid with health insurance certificates covering certain specified basic health protection. The states would have the responsibility for the balance of health care for an eligible individual after his basic coverage had been exhausted. Thus, the Hall plan would replace medicaid.

The second part of the Hall proposal calls for the federal government helping, in cases of catastrophic illness, those persons who can afford normal health care insurance only.

Other national health insurance plans are being sponsored by Walter Reuther, head of the automobile workers' union; the AFL-CIO; Sen. Jacob K. Javits (R., N.Y.), and Gov. Nelson Rockefeller of New York. Indications are that the committee will not give serious consideration to such legislation before next year at the earliest. However, it appears probable that the issue will come to a vote in Congress before the 1972 elections.

* * *

The AMA also submitted to the Ways and Means Committee a statement on the Nixon Administration's "Health Cost Effectiveness Amendments of 1969" legislation.

The AMA commended the Department of Health,

Education and Welfare for its efforts to curtail the rising costs of medicaid and medicare, but said that the Association believes "there are better and more appropriate means of meeting this problem."

As for the provision prohibiting payment to physicians who have committed fraud, overcharged or otherwise abused the medicare program, the AMA said:

"It should be kept in mind that there presently exist remedies to reach the cases of abuse which may exist—certainly the cases of extreme abuses which HEW has asserted these proposed penalties are intended to reach. While it is true that the law does not provide authority to disqualify physicians as to prospective participation, a carrier may reject or review a physician's claims on an individual basis as each claim is presented.

"The apparent concern of the Congress regarding alleged abuses and increasing program costs may require some changes in the administration of federally financed health care programs. However, the proposed amendments appear to introduce more severe remedies than the problems require."

As for the provision that utilization review committees pass retroactively on the medical necessity of admission of medicare patients to hospitals, the AMA said:

"At the present time a utilization review plan of an institution must provide for review, on a sample basis or other basis, of admissions, duration of stays, and services furnished but must provide for review of each case of extended stay and also determine medical necessity of further stay. The law provides for three additional days of benefit payments after a negative finding and notification.

"Where a finding has been made that the admission was unnecessary, no payment would be made. Thus the denial of payment would be retroactive to the date of admissions. The three-day grace period is removed from existing law.

"The AMA previously objected to initial certification of the need for admission to a hospital, and this initial certification requirement was removed from the law. Under this bill the utilization review committee would be required to review the attending physician's judgment as to the need for hospitalization. The present requirement of the committee under medicare is to review extended stay cases to determine need for further stay; thus it does not review a great number of cases of hospitalization where the patient is discharged earlier. Requiring committees to review all cases of hospitalization would impose a tremendous burden on the committee; and create additional heavy demands on physicians' productive manhours.

"An adverse finding by a committee would subject the patient to individual liability for hospital

charges. As a result, this provision could act as a restraint on patients receiving care, particularly in those cases where a physician recognizes the possibility of differing medical judgments concerning the admission."

Along the Bookshelf

(Continued from page 498)

- Heald, Felix P., editor. Adolescent nutrition and growth. New York, Appleton-Century-Crofts, 1969.
- Kant, Fritz. Frigidity; dynamics and treatment. Springfield, Ill., Thomas, 1969.
- Land, Herman W. What you can do about drugs and your child. New York, Hart, 1969.
- Management of the injured patient, by 31 authors. New York, Hoeber Medical, 1969.
- McBride, Carmen. Silent Victory. Chicago, Nelson Hall, 1969.
- McDougall, Joyce. Dialogue with Sammy; a psychoanalytical contribution to the understanding of child psychosis. New York, International Universities Press, 1969.
- Medical progress and the law. Dobbs Ferry, Oceana Publications, 1969.
- McMinn, R. W. H. Tissue repair. New York, Academic Press, 1969.
- Roemer, Milton Irwin. The organization of medical care under social security; a study based on the experience of eight countries. Geneva, 1969.
- Stare, Frederick John. Eating for good health. New revised edition. New York, Cornerstone Library, 1969.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

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Book REVIEWS

MEDICAL INTERVIEWING, A Programmed Manual by Robert E. Froelich and S. Marian Bishop. C. V. Mosby Company, St. Louis, 1969. 116 pages illustrated. \$4.75.

A common complaint voiced in the surgical locker room or the doctors' lounge goes, "They don't teach these young fellows the art of medicine anymore." This volume is proof to the contrary. Perhaps the moral of the story is that when you can teach it you can hardly call it an art anymore.

Although medical students for years have been dutifully taught to memorize innumerable questions which must be answered and recorded in order to obtain a "complete history," little if any time has ever been devoted to how to ask them. This book attacks that problem in a very straightforward and direct fashion and should be required material for any medical student. In addition, many older "practitioners of the art" would benefit from studying it. They would find the spotlight pointed on bad habits, guides for new, better or more effective practices and, perhaps most importantly, simply a better understanding of what they have been doing for many years during their face to face dealings with the patient.

It is well to note that the word study was used above since this is a programmed manual intended for teaching and not just skimming. It insists that you pay some attention to the content and think about it as you go along. Nonetheless it is not laborious or boring and the insights of the authors make for interesting and frequently surprising or enlightening insights into the dynamic relation that occurs whenever patient and physician confront each other.

The book is paper-bound, adequately printed on good paper, has only a few illustrations where a picture says more than words. There is no bibliography as such, but a very brief list of other useful readings on the same subject is appended.

Though many great strides in medical education have undoubtedly occurred since this reviewer had his, we are not familiar with quite the equivalent of this book and feel that it fills a very distinct need. We expect that it will find wide usefulness both in medical schools and elsewhere.—J.E.S.

BASIC DIAGNOSTIC RADIOLOGY by Malcolm D. Jones. C. V. Mosby Company, St. Louis, 1969. 266 pages illustrated. \$11.75.

The need seems a bit stretched for yet another "introductory" text in roentgen diagnosis aimed at the medical student in view of the several excellent presentations already available (Meschan; Squire; Hodges, Holt and Lampe). However, Dr. Jones, an acknowledged master teacher whose accomplishments include the introduction of radiology early in the undergraduate curriculum of the University of California Medical School, has attempted to approach his subject in a slightly different manner. The questions most frequently asked by those first encountering or needing to know about roentgen diagnosis are said to be the base theme of the book. In this context, the work is only a partial success. I cannot help but feel that we are reading Dr. Jones' lecture notes for "Introduction to Diagnostic Radiology." The description of the heart silhouette on page 33, for instance, is *prima facie* evidence of the fact that "one picture is worth a thousand words."

(Continued on page 503)



"Experiment 68"

The following report regarding "Experiment 68" was prepared by a Kansas Blue Cross and Blue Shield staff member for members of the Kansas Blue Cross and Blue Shield Boards. The purpose of "Experiment 68" was to determine whether the availability of out-of-hospital benefits to Blue Cross and Blue Shield subscribers could avoid or reduce utilization in certain types of cases and to reduce the overall costs of health care. While the relationship between outpatient benefits and inpatient utilization has not been definitely established, "Experiment 68" indicates Blue Cross and Blue Shield interest in working with medicine to reduce health care costs.

Findings

In January 1967, Dr. Robert K. Purves proposed an experiment which might demonstrate that the provision of out-of-hospital benefits to Blue Cross and Blue Shield subscribers could avoid hospitalization "in certain types of cases and thereby release hospital beds and (reduce) the overall cost of care." Experiment 68 developed and an experimental group received free out-of-hospital benefits for eight months in 1968 (February through September). It was hoped that this group would have lower hospital inpatient utilization rates when compared with their prior experience and that of control groups selected for the experiment. Of particular importance were inpatient payments since the first priority was to discover the means to induce dollar savings.

The statistical results do not demonstrate that the experimental benefits reduced inpatient payments. Taken at face value and without regard to statistical significance, the figures show that the experimental group had inpatient payments which were ninety

cents higher per contract for the eight months than the level suggested by control group and prior year experience. This amount is so minimal that it represents strong support for the contention that experimental benefits had no effect on inpatient payments.

Further analysis suggests, however, that the "no effect" conclusion might be a simplified view of the net impact of offsetting changes. A closer look at the data shows that medical admissions resulting in stays of ten days or less were reduced by a statistically significant amount for family contracts in the experimental group. This finding was supported by single contract experience, although this smaller sample did not provide statistical significance. It appears, therefore, that some admissions involving diagnostic procedures or minor treatment procedures were avoided. Why, then, were the total inpatient payments not affected by this apparent savings? An explanation is provided in the APHA paper and the data support this explanation. It should be emphasized, however, that statistical significance tests of this explanation were not feasible as they were not a part of the original study design.

The explanation follows. There were savings, in the magnitude of 20 per cent or greater, in medical admissions having durations of ten days or less. The free benefits also reduced the financial barriers facing people who perceived the need to seek medical care. As a result, some people sought medical care which would have been avoided or postponed in the absence of the experimental benefits. These cases included needs which existed but went undetected before the experimental benefits were initiated. This "demand creation effect" resulted in hospital stays of all durations, including a disproportionate number of longer stays for the treatment of pre-existing conditions.

The demand creation effect is evident in the medical admissions and days of the longer stay admissions and in the single surgical admissions. In net terms, the demand creation effect offset the effect which was desired, i.e., the avoidance of unnecessary hospital admissions. Admissions were reduced somewhat, but the longer stay nature of the demand creation admissions negated any dollar savings.

Again, it should be mentioned, the APHA paper presents a more detailed summary of results. Before accepting this demand creation explanation, one should view the evidence as presented in that paper.

Implications

It was hoped that "Experiment 68" would provide Blue Cross and Blue Shield of Kansas with guidelines for use in product development. If it were clearly evident that savings in medical care costs had been achieved through providing out-of-hospital benefits, a strong selling point for such benefits would be established. In the absence of this occurrence, two alternative interpretations will be offered.

1. *No Reason to Act*

The experiment did not demonstrate potential savings. Two hundred thousand dollars were spent for experimental benefits with no resultant decrease in inpatient payments. If extended outpatient benefits are to be provided, they must be implemented for reasons other than those which this experiment was designed to support. The experimental results, by their own merits, can only weaken the case for out-of-hospital coverage.

2. *Both Effects Are Desirable*

The experimental results show that some unnecessary hospital admissions were avoided. Apparently, the experimental benefits also resulted in the detection and treatment of some medical needs which, for economic reasons, would have gone undetected in the absence of the benefits. Both effects, the avoidance of unnecessary care and the increased access to necessary care, are desirable. While extended benefits would necessitate equivalent increases in subscription rates, these benefits should be offered and actively promoted.

In the APHA paper, it was suggested that the saved admissions would occur, in the long run, with a higher frequency than we observed in the eight month experiment. Also, the "created" admissions could be expected to diminish in the long run. Indeed, the experience of various prepaid group practice plans supports this speculation. If valid, these long run implications add further evidence that out-of-hospital benefits are desirable.

Final Comments

This report will not recommend a specific choice between the two alternatives presented. Such a choice would depend largely on the marketability of extended benefits. Regardless of the interpretation of results which one might accept, one point has been made clear. Despite the expense and care which went into implementing "Experiment 68," the relationship between outpatient benefits and inpatient utilization has not been definitely established. The research which would be necessary to define this relationship would be extremely expensive and would require a considerable length of time, probably over three years. This fact has been demonstrated by "Experiment 68." Change may not wait for research to provide the answers and, thus, research designed to provide these answers might prove to be ill-advised.

Book Reviews

(Continued from page 501)

This reviewer believes the text is also marred by an unevenness of detail and emphasis. The gastrointestinal tract, for instance, receives short shrift compared to the mastoids! It is also distressing to find long outline lists preceding the major sections. Useful as they may be, these are most often repellent to the first reader (except perhaps as the sources of answers on the final exam!).

The illustrations are well chosen and clear. The quality of production is up to the publisher's usual high standard.

I believe the book would serve well as an outline for teachers of undergraduate radiology. The student might find more delight in one of the other texts.—
J.W.T.

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